SLOVENSKI STANDARD
SIST EN 1462:1998

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Nosilci žlebov - Zahteve in preskušanje

Brackets for eaves gutters - Requirements and testing

Rinnenhalter für Hängedachrinnen - Anforderungen und Prüfung

Crochets de gouttieres - Exigences et méthodes d'essai

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English version

Brackets for eaves gutters - Requirements and testing

Crochets de gouttières pendantes - Exigences et méthodes d'essai

Rinnenhalter für Hängedachrinnen - Anforderungen und Prüfung

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Contents

Foreword

This European Standard has been prepared by Technical Committe 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of an identical text or by endorsement, at the latest by July 1997, and conflicting national standards shall be withdrawn at the latest by July 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies the requirements for brackets intended to support eaves gutters conforming to EN 607 or EN 612.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 485-1	Aluminium and aluminium alloys - Sheet, strip and plate - Part 1: Technical conditions for inspection and delivery
EN 485-2	Aluminium and aluminium alloys - Sheet, strip and plate - Part 2: Mechanical properties
EN 485-3	Aluminium and aluminium alloys - Sheet, strip and plate - Part 3: Tolerances on shape and dimensions for hot-rolled products
EN 485-4	Aluminium and aluminium alloys - Sheet, strip and plate - Part 4: Tolerances on shape and dimensions for cold-rolled products
prEN 513	Unplasticised polyvinylchloride (PVC-U) profiles for the construction of windows - Determination of the resistance to artificial weathering
EN 573-1	Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 1: Numerical designation system
EN 573-3	Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3: Chemical composition
EN 607	Eaves gutters and fittings made of PVC-U - Definitions, requirements and testing
EN 612	Eaves gutters and rainwater down-pipes of metal sheet - Definitions, classifications and requirements
prEN 754-1	Aluminium and aluminium alloys - Wrought products - Cold drawn rod/bar and tube - Part 1: Technical conditions for inspection and delivery
prEN 755-1	Aluminium and aluminium alloys - Wrought products - Extruded rod/bar, tube and profile - Part 1: Technical conditions for inspection and delivery
prEN 1029	Hot dip galvanized coatings on fabricated ferrous products - Specification
prEN 1652	Copper and copper alloys - Plate, sheet, strip and circles for general purposes
EN 10025	Hot rolled products of non-alloy structural steels - Technical delivery conditions
EN 10088-2	Stainless steel - Part 2: Technical delivery conditions for sheet/plate and strip for general purposes
EN 10088-3	Stainless steel - Part 3: Technical delivery conditions for semi-finished products, bars, rods and sections for general purposes

prEN 10111	Continuously hot-rolled low carbon steel sheet and strip for cold bending - Technical delivery conditions
EN 10142	Continuously hot-dip zinc coated low carbon steel strip and sheet for cold forming - Technical delivery conditions
EN 10214	Continuously hot-dip zinc-aluminium (ZA) coated steel strip and sheet - Technical delivery conditions
EN 10215	Continuously hot-dip aluminium-zinc (AZ) coated steel strip and sheet - Technical delivery conditions
EN 20105-A02	Textile tests for colour fastness - Part A02: Grey scale for assessing change in colour (ISO 105-A02:1993)

3 Definitions

For the purposes of this standard the following definitions apply:

3.1 **rafter bracket:** A gutter bracket suitable for fixing to a rafter.

3.2 **fascia bracket:** A gutter bracket suitable for fixing to an element of the building which runs parallel to the gutter.

4 Materials

Gutter brackets shall be manufactured from one of the materials listed below:

- Mild steel conforming to EN 10025 or prEN 10111,
- Hot-dip metal coated steel sheet DX 51 D or higher grade, with a minimum coating mass of 275 g/m², total both sides (thickness of each side: 20 μm), conforming to EN 10142.
- Zinc-aluminium coated steel sheet DX 51 D+ZA or higher grade, with a minimum coating mass of 225 g/m², total both sides (thickness of each side: 20 μm), conforming to EN 10214.
- Aluminium-zinc coated steel sheet DX 51 D+AZ or higher grade, with a minimum coating mass of 150 g/m², total both sides (thickness of each side: 20 μm), conforming to EN 10215.
- Stainless steel conforming to EN 10088-2 or EN 10088-3.
- Copper conforming to prEN 1652.

- Aluminium or aluminium alloy conforming to EN 485-1 to EN 485-4 in any grade of the 1000, 3000, 5000 and 6000 series, or conforming to prEN 754-1 or prEN 755-1, in composition conforming to EN 573-3, except those having a mass content of more than 0,3 % of copper or more than 3 % of magnesium.

- Unplasticized polyvinyl chloride (PVC-U) conforming to the requirements given in EN 607 for injection moulded fittings.

5 Resistance to corrosion

5.1 Gutter brackets of mild steel conforming to EN 10025 or prEN 10111 shall be protected from corrosion by one of the methods conforming to 5.1.1, 5.1.2 or 5.1.3.

5.1.1 Hot-dip galvanizing conforming to prEN 1029. The minimum zinc coating shall conform with table 1.

Table 1: Minimum zinc coating for mild steel brackets hot-dip galvanised after manufacture

Thickness of bracket *a* mm	Thickness of coating minimum single value μm	 average value μm
$a > 6$	70	85
$6 \geq a > 3$	55	70
$3 \geq a \geq 1,5$	45	55

5.1.2 Flexible plastic coating, not less than 60 μm thick, over a zinc coating not less than 20 μm average coating thickness.

5.1.3 Flexible plastic coating, not less than 60 μm thick, with a suitable substrate. When tested by the method given in Annex A the test pieces shall not exhibit any signs of rust or loosening of the coating from the steel.

5.2 Gutter brackets of PVC-U shall have adequate resistance to the effect of UV radiation. Test pieces exposed to 2,6 GJ/m^2 of radiation by the method given in prEN 513 shall not exhibit change of colour beyond fastness grade 3 conforming to the grey scale of EN 20105-A02.

5.3 Gutter brackets shall be divided into two classes according to their resistance to corrosion, as given in table 2. Gutter brackets of class A are for use in aggressive atmospheres and brackets of class B in more benign conditions.

Table 2 : Classes of resistance to corrosion

Material of gutter bracket	Class of resistance to corrosion
Stainless steel, copper, aluminium or mild steel coated in accordance with 5.1.1 or 5.1.2	A
PVC-U	A
Mild steel coated in accordance with 5.1.3, hot-dip coated mild steel conforming to EN 10142, EN 10214 or EN 10215	B

6 Functional requirements

6.1 Gutter brackets shall be divided into three classes according to their load bearing capacity. When tested according to the method given in Annex B brackets of 80 mm or greater top opening width shall support the loads given in table 3 without collapse and without causing permanent deflection exceeding 5 mm at the outer end of the bracket.

Table 3: Load bearing classes

Application	Test load N	Load bearing class
Brackets for heavy duty	750	H
Brackets for light duty	500	L
Brackets for gutters below 80 mm top opening width	-	O

6.2 Holes for fastenings

6.2.1 Gutter brackets shall have holes for fastenings of a minimum diameter of 5 mm after application of corrosion resistance coating, when applicable.

6.2.2 Rafter brackets shall have not less than 2 holes. The holes of brackets designed to be fixed either by nails or screws shall not be less than 12 diameters apart. The holes in rafter brackets designed to be fixed only by screws shall not be less than 7 diameters apart; such brackets shall be marked "S".

6.2.3 Fascia brackets of the heavy duty class H shall have not less than 2 holes. When these holes are one above the other on the centre line of the bracket, they shall be not less than 4 diameters apart. When the holes are on each side of the centre line and in the same horizontal plane, they shall be not less than 7 diameters apart. When the holes are on each side of the centre line but at different levels, they shall be not less than 5 diameters apart.

6.2.4 Fascia brackets of the light duty class L may have a single hole on the centre line of the bracket. If this hole is not provided, they shall have holes as specified in 6.2.3.

6.2.5 Minimum spacings of holes for fastenings shall be measured from centre to centres and relate to the spacing between those two holes which are furthest apart when more than two are provided.

6.2.6 Other holes additional to these minimum requirements are permitted.

6.3 Gutter brackets shall be of such dimensions that the gutters of the shape and size for which they are designed can slide freely through them.

6.4 It shall not be possible for gutters to be lifted out of a bracket by strong wind. When this requirement is not met by the shape of the bracket, clips or springs shall be provided. They are not required to be of the same material as the bracket to which they are attached, but shall have the corrosion resistance class A if attached to a gutter bracket of corrosion resistance class A.

Clips and springs shall be made of any of the following:

- any material given in clause 4,
- polyamide plastic,
- galvanized and prepainted steel sheet having an average coating mass of not less than 275 g/m^2.

Care shall be taken to avoid risk of electrolytic corrosion due to the combination of unsuitable metals.

7 Designation

Gutter brackets conforming to this European Standard shall be designated by

a) the number of this European Standard (EN 1462);
b) the corrosion resistance class A or B in accordance with table 2;
c) the load bearing class H, L or O in accordance with table 3,
d) the size of the gutter for which the brackets are intended by the girth for sheet metal gutter conforming to EN 612 or by the top opening width for plastics gutters conforming to EN 607.

8 Marking

Gutter brackets conforming to this European Standard shall be marked at least with the following:

a) name or logo of the manufacturer;
b) load bearing class H, L or O;
c) corrosion resistance class A or B (for brackets of mild steel only)
d) suitable for screw fixing, S (for certain rafter brackets only, see 6.2.2);
e) material, in case of plastics brackets, PVC-U.