

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-20/0405**  
**of 7 July 2023**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

DELTA-MAXX PLUS

Product family  
to which the construction product belongs

Membrane for use as roof underlay

Manufacturer

Dörken GmbH & Co. KG  
Wetterstraße 58  
58313 Herdecke  
DEUTSCHLAND

Manufacturing plant

Dörken GmbH & Co. KG  
Wetterstraße 58  
58313 Herdecke  
DEUTSCHLAND

This European Technical Assessment  
contains

8 pages including 3 annexes which form an integral part  
of this assessment

This European Technical Assessment is  
issued in accordance with Regulation (EU)  
No 305/2011, on the basis of

EAD 030218-01-0402

This version replaces

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## Specific part

### 1 Technical description of the product

"DELTA-MAXX PLUS" is a roof underlay membrane, which consists of a special polyester nonwoven (PET) with a diffusion-open polyurethane coating (TPU) on the upper side.

"DELTA-MAXX PLUS" is provided with a factory-integrated self-adhesive zone along both edges (integrated self-sealing edge).

The membranes do not contain any substances that are intended to inhibit or prevent root penetration (root protection agents) or any fire retardants.

The roof underlay membranes are fastened to the timber construction with nails or screws, e.g. by means of nailed or screwed counter battens.

For an adequate application of product – depending on the specific roof design, e. g. roof slope, roof built-up, details – other adjuvants may be needed, e. g. mastic sealant, adhesive tape, nail-sealing tape. In general, these adjuvants are given in the manufacturer's technical documents<sup>1</sup>.

An additional product description is given in Annex A.

### 2 Specification of the intended use in accordance with the applicable European Assessment Document

The membranes are intended for use as underlays, which are to be used under roof covering of roofs with roof pitch from 5° to 90°.

In the technical documents, the manufacturer gives information concerning the substrates / roof build-up which the product is suitable for.

The membranes are intended to be exposed to weathering (UV rays) in accordance with EN 13859-1.

The performance given in Section 3 is only valid if the roof underlay membranes are used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the roof underlay membranes of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

### 3 Performance of the product and references to the methods used for its assessment

#### 3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	see Annex A
External fire performance of roofs	see Annex A

<sup>1</sup> The manufacturer's technical documents comprise all information necessary for the production and the installation of the product as well as for the repair and it is deposited with DIBt.

### 3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Resistance to water penetration	see Annex A
Water column resistance	see Annex A
Water vapour transmission properties	see Annex A
Tensile properties	see Annex A
Resistance to tearing	see Annex A
Hail resistance	see Annex A
Dimensional stability	see Annex A
Flexibility at low temperature	see Annex A
Resistance to penetration of air	see Annex A
Water tightness of seams	see Annex A
Emissivity	see Annex A
Tightness of perforations from nails and screws	see Annex A
Content, emission and/or release of dangerous substances	see Annex A

### 3.3 Aspects of durability

Essential characteristic	Performance
Artificial ageing behaviour by exposure to combination of UV radiation (336 h) and elevated temperature and to heat	see Annex A
High heat resistance	see Annex A
Artificial ageing behaviour by exposure to combination of UV radiation (5000 h) and elevated temperature and to heat	see Annex A
Artificial ageing behaviour by prolonged exposure to heat with accelerated air-speed $5\pm 2$ m/s	see Annex A

## 4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 030218-01-0402, the applicable European legal act is: Decision 1999/90/EC.

The system to be applied is: 3

In addition, with regard to reaction to fire for products covered by this EAD the applicable European legal act is: Decision 1999/90/EC, as amended by 2001/596/EC.

The system to be applied is: 3

**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD**

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 7 July 2023 by Deutsches Institut für Bautechnik

Bettina Hemme  
Head of Section

*beglaubigt:*  
Hannoun

### Description of the roof underlay membrane "DELTA MAXX PLUS"

Built-up:

Polyurethane coating (TPU)

Special polyester nonwoven (PET)



Length	50 m (- 0 %)
Width	1.5 m (+ 1.5 / - 0.5 %)
Straightness	≤ 10 mm/10 m
Mass per unit area	190 g/m <sup>2</sup> (+ 20 /- 10 %)

### Performance of the roof underlay membrane "DELTA-MAXX PLUS"

Essential characteristic	Performance
Reaction to fire	Class B – s1, d2 <sup>1)</sup>
External fire performance of roofs	NPA
Resistance to water penetration	Class W1 <sup>2)</sup>
Water column resistance	NPA
Water vapour transmission properties	S <sub>d</sub> = 0.19 m
<b>Tensile properties</b>	
Maximum tensile force	longitudinal / transverse 450 N/50 mm / 400 N/50 mm
Elongation	longitudinal / transverse 50 % / 60 %
Resistance to tearing (nail shank)	longitudinal / transverse 340 N / 370 N
Hail resistance	NPA
Dimensional stability	longitudinal / transverse ≤ 2 % / ≤ 2 %

(NPA: no performance assessed)

<sup>1)</sup> Class according to EN 13501-1.

The tests for reaction to fire have been performed regarding mounting and fixing as follows:

- free hanging / free standing (distance from the backing board 80 mm)
- mechanically fixed
- horizontal joints/seams (with integrated self-adhesive edges)

<sup>2)</sup> Class according to EN 13859-1.

**DELTA-MAXX PLUS**  
Dörken GmbH & Co. KG

**Description and performance of product**

Annex A1

Performance of the roof underlay membrane "DELTA-MAXX PLUS" (continued)	
Essential characteristic	Performance
Flexibility at low temperature	- 40 °C
Resistance to penetration of air	NPA
Water tightness of seams seams with "integrated self-sealing edges"	Watertight (2 h, 200 mm water column)
Emissivity	NPA
Tightness of perforations from nails and screws	No additional nail sealing material is necessary under the following boundary conditions: - on a full-surface and pressure-resistant substrate (at fastening points), - heavy rain $\leq 2 \text{ l/m}^2 \times \text{min}$ and wind pressure $\leq 600 \text{ Pa}$ , - central European climate conditions (altitudes $\leq 690 \text{ m}$ above sea level with an average total annual rainfall $\leq 1185 \text{ mm/a}$ ).
Content, emission and/or release of dangerous substances	NPA
<b>Artificial ageing behaviour by exposure to combination of UV radiation (336 h) and elevated temperature and to heat</b>	
Resistance to water penetration after aging	Class W1 <sup>2)</sup> (resistant against artificial ageing; 336 h UV + 90 d at 70°C)
Tensile properties after aging	
Maximum tensile force	longitudinal / transverse 380 N/50 mm / 320 N/50 mm
Elongation	longitudinal / transverse 50 % / 60 %
<b>High heat resistance</b>	
Resistance to water penetration after aging	NPA
Tensile properties after aging	
Maximum tensile force	longitudinal / transverse NPA
Elongation	longitudinal / transverse NPA
<b>Artificial ageing behaviour by exposure to combination of UV radiation (5000 h) and elevated temperature and to heat</b>	
Resistance to water penetration after aging	NPA
Tensile properties after aging	
Maximum tensile force	longitudinal / transverse NPA
Elongation	longitudinal / transverse NPA
<b>Artificial ageing behaviour by prolonged exposure to heat with accelerated air-speed 5±2 m/s</b>	
Resistance to water penetration before and after aging	Class W1 <sup>2)</sup> (resistant against prolonged exposure to heat with accelerated air-speed 5±2 m/s; 64 weeks at 70°C)
<sup>2)</sup> Class according to EN 13859-1. (NPA: no performance assessed)	
<b>DELTA-MAXX PLUS</b> Dörken GmbH & Co. KG	
<b>Performance of product</b>	
Annex A2	

### Installation

The performance of the roof underlay membrane can be assumed only, if the installation is carried out according to the installation instructions stated in the technical documents of the manufacturer, in particular taking account of the following points:

- installation by appropriately trained personnel;
- installation with the required tools and adjuvants;
- precautions during installation;
- inspecting the substrate in the overlapping (and bonding) areas which shall be clean, dry and free of dust, frost and grease;
- inspecting the roof structure for sufficient stability;
- inspecting compliance with suitable weather conditions, e. g. gluing of overlaps at  $\geq +5$  ° C;
- appropriate fixation in accordance with manufacturer's instructions, e.g., permanent fixation with nailed or screwed counter battens, maximum / minimum fixing distances;
- treatment of details in accordance with manufacturer's instructions, e.g. eave, ridge, free end;
- applying a nail-sealing tape where necessary (in accordance with manufacturer's instructions), e. g. in case of non-full-surface or non-pressure-resistant substrate at fastening points.

**DELTA-MAXX PLUS**  
Dörken GmbH & Co. KG

**Intended use**  
Specifications

Annex B