

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-22/0731
of 2 December 2022

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General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

DELTA-XX PLUS[®] S

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

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Specific part

1 Technical description of the product

"DELTA-XX PLUS® S" is a highly tear-resistant, reinforced, diffusion-open 4-layer roof underlay made of two polypropylene special non-woven fabrics (PP), a polypropylene reinforcement fabric (PP) and a vapour-permeable polyurethane functional film (TPU).

"DELTA-XX PLUS® S" is provided with a factory-integrated self-adhesive zone along both edges (integrated self-adhesive edges).

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

The roof underlay membranes are fastened to the timber joists 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 documents¹.

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.

¹ 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 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

3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Resistance to water penetration	see Annex A
Water vapour transmission	see Annex A
Tensile properties	see Annex A
Resistance to tearing	see Annex A
Resistance to perforation - Hail resistance	see Annex A
Resistance to perforation - Resistance to persons stepping through the membrane	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
Resistance to artificial ageing - Artificial ageing behaviour (standard)	see Annex A
Resistance to artificial ageing - UV resistance 5000 h and exposure to heat	see Annex A
Resistance to artificial ageing - Prolonged exposure to heat with accelerated air-speed 5 ±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 2 December 2022 by Deutsches Institut für Bautechnik

Bettina Hemme
Head of Section

beglaubigt:
Hannoun

Description of the roof underlay membrane "DELTA-XX PLUS® S"

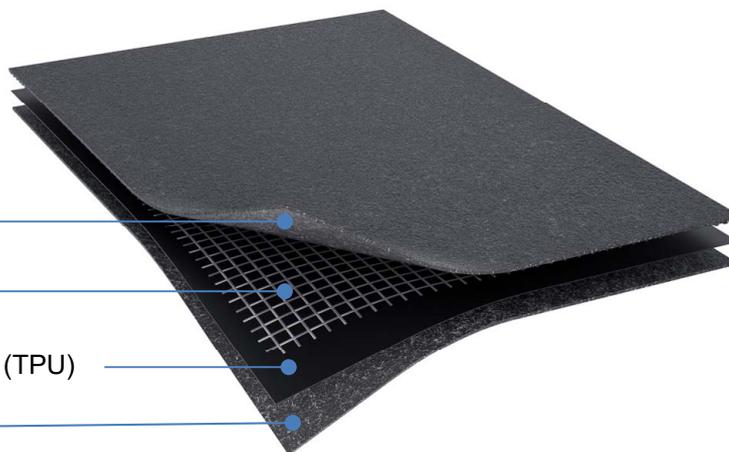
Built-up:

polypropylene special non-woven (PP)

polypropylene reinforcement fabric (PP)

vapour-permeable polyurethane functional film (TPU)

polypropylene special non-woven (PP)



Length	50 m (-0 %)
Width	1.5 m (+1.5 / -0.5 %)
Straightness	≤ 30 mm/10 m
Mass per unit area	180 ±20 g/m ²

Performance of the roof underlay membrane "DELTA-XX PLUS® S"

Essential characteristic	Performance
Reaction to fire	class E ¹⁾
Resistance to water penetration	class W1 ²⁾
Water vapour transmission	S _d = 0.08 ±0.02 m
Tensile properties	
F _{max}	longitudinal / transverse 505 N/50 mm / 450 N/50 mm
Elongation	longitudinal / transverse 20 % / 15 %
Resistance to tearing (nail shank)	longitudinal / transverse 350 N / 415 N
Resistance to perforation - Hail resistance	no performance assessed
Resistance to perforation - Resistance to persons stepping through the membrane	no performance assessed
Dimensional stability	longitudinal / transverse ≤ 0.5 % / ≤ 0.5 %
Flexibility at low temperature	-45 °C
Resistance to penetration of air	no performance assessed

DELTA-XX PLUS® S
Dörken GmbH & Co. KG

Description and performance of product

Annex A1

Performance of the roof underlay membrane "DELTA-XX PLUS® S" (continued)

Essential characteristic	Performance
Water tightness of seams seams with "integrated self-sealing edges"	watertight (2 h, 200 mm water column)
Emissivity	no performance assessed
Tightness of perforations from nails and screws	no performance assessed
Content, emission and/or release of dangerous substances	no performance assessed
Resistance to artificial ageing - Artificial ageing behaviour (standard)	
Resistance to water penetration after aging	class W1 ²⁾ (resistant against artificial ageing; 336 h UV + 90 d at 70 °C)
Tensile properties after aging	
F_{max}	longitudinal / transverse 495 N/50 mm / 395 N/50 mm
Elongation	longitudinal / transverse 20 % / 15 %
Resistance to artificial ageing - UV resistance 5000 h and exposure to heat	
Resistance to water penetration after aging	no performance assessed
Tensile properties after aging	
F_{max}	longitudinal / transverse no performance assessed
Elongation	longitudinal / transverse no performance assessed
Resistance to artificial ageing - Prolonged exposure to heat with accelerated air-speed 5 ±2 m/s	
Resistance to water penetration after aging	class W1 ²⁾ (resistant against prolonged exposure to heat with accelerated air-speed 5 ±2 m/s; 64 weeks at 70 °C)

1) Class according to EN 13501-1

2) Class according to EN 13859-1

DELTA-XX PLUS® S
Dörken GmbH & Co. KG

Performance of product

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 $\geq +5\text{ °C}$;
- 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.

Electronic copy of the ETA by DIBt: ETA-22/0731

DELTA-XX PLUS® S Dörken GmbH & Co. KG	Annex B
Intended use Specifications	