

SINTEF Technical Approval

TG 20902

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 Provided listed on
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SINTEF confirms that

DELTA-XX PLUS® UNIVERSAL wind barrier

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document



1. Holder of the approval

Dörken GmbH & Co. KG
 Wetterstr. 58
 58313 Herdecke
 Germany
www.doerken.de

2. Product description

DELTA-XX PLUS® UNIVERSAL wind barrier is a triple layer membrane, made of a vapour open PU film sandwiched between two layers of nonwoven, spunbonded polypropylene. DELTA-XX PLUS® UNIVERSAL wind barrier is black on both sides with grey printing on the upper side. The product has self-adhesive strips. Measures and tolerances are shown in table 1.

DELTA-XX PLUS® UNIVERSAL wind barrier can be purchased together with several accessories, described in table 3.

Table 1

Measures and tolerances for DELTA-XX PLUS® UNIVERSAL wind barrier measured according to EN 1848-2 and EN 1849-2

Property	Measure	Tolerance	Unit
Roll width	1.50	- 0.5 % / + 1.5 %	m
Roll length	50	- 0	m
Mass per unit	150	± 20	g/m ²

3. Fields of application

DELTA-XX PLUS® UNIVERSAL wind barrier is intended for use as an external wind barrier in thermal insulated wooden walls with aired cladding and wooden roof constructions, see fig. 1 and fig. 2.

DELTA-XX PLUS® UNIVERSAL wind barrier can be used as a wind barrier under wooden board sheathing in insulated roofs in buildings in hazard class 1-6 in fire class 1, 2 og 3.

DELTA-XX PLUS® UNIVERSAL wind barrier can be used as a wind barrier on walls in hazard class 1-6 in fire class 1 in buildings up to three floors if each dwelling unit has direct access to the ground level (not via stairs or staircases). For other use, a fire safety analysis must be performed. DELTA-XX PLUS® UNIVERSAL wind barrier cannot be used as a combined roof underlayer and wind barrier.

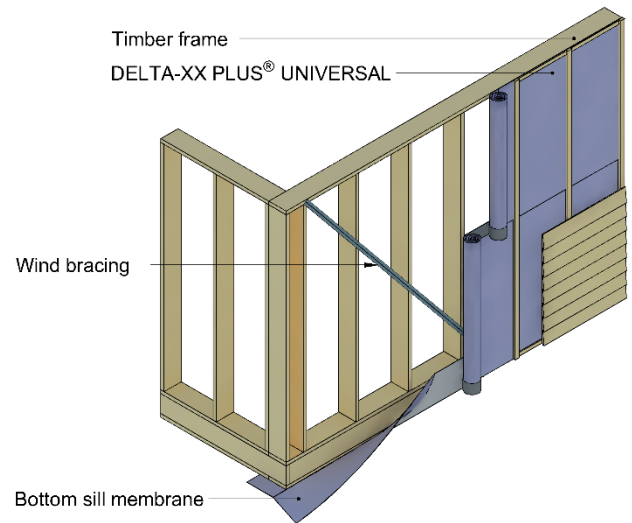


Fig. 1
 DELTA-XX PLUS® UNIVERSAL wind barrier used in a timber frame wall

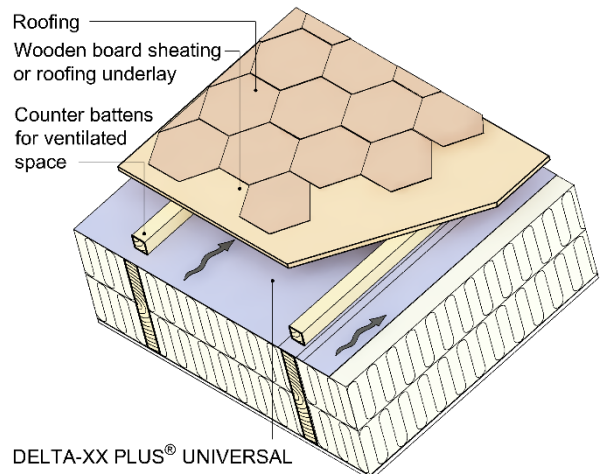


Fig. 2
 DELTA-XX PLUS® UNIVERSAL wind barrier used in a thermal insulated roof construction

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Table 2
Product characteristics for fresh material of DELTA-XX PLUS® UNIVERSAL wind barrier

Property	Test method EN	DELTA-XX PLUS® UNIVERSAL		Unit	
		Declaration of performance ¹⁾	Control limit ²⁾		
Dimensional stability	Longitudinal	1107-2	-	≤ 2	%
	Transversal		-	≤ 2	
Water tightness 200 mm water column for 2 hours		1928 (A)	W1	W1	-
Air permeability material		12114	-	≤ 0.001 ³⁾	m ³ /m ² h50Pa
Air permeability construction		12114	-	≤ 0.1 ³⁾	m ³ /m ² h50Pa
Water vapour permeability	S _d -value	ISO 12572	0.08 ± 0.02	≤ 0.1	m
Resistance to tearing	Longitudinal	12310-1	180 ± 30	≥ 150	N
	Transversal	13859-2	200 ± 30	≥ 170	
Tensile strength	Longitudinal	12311-1	340 ± 40	≥ 300	N /50 mm
	Transversal	13859-2	270 ± 40	≥ 230	
Elongation at max. load	Longitudinal	12311-1	80 ± 40 %	≥ 48	%
	Transversal	13859-2	80 ± 40 %	≥ 48	
Adhesive strip, Peel resistance		EN 12316-2	-	≥ 28/26 ³⁾	N/50 mm
	Max/Average				
Adhesive strip, Shear resistance		EN 12317-2	-	≥ 129 ³⁾	N/50 mm
Adhesive strip, Water tightness 200 mm water column for 2 hours		EN 1928 / EN 13859-1	-	Tight ³⁾	-

¹⁾ Manufacturer's Declaration of Performance, DoP

²⁾ Control limit shows values the product must satisfy during internal factory production control and audit testing

³⁾ Determined during type testing

Table 3
Accessories for mounting of DELTA-XX PLUS® UNIVERSAL wind barrier

Accessory	Material / Description	Used for	Measures
DELTA®-FLEXX-BAND	Butyl-rubber tape with backing of nonwoven, spunbonded PP	Taping of penetrations and small repairs	Width: 100 mm Roll length: 10 m
DELTA®-SCHAUM-BAND (SB)	VPE foam	Sealing nail penetrations under counter battens	Width: 60 mm Roll length: 30 m
DELTA®-THAN	Permanently elastic, special rubber compound adhesive in cartridge	Additional tightening material in inaccessible areas	Cartridge: 310 ml

4. Properties

Material properties

Material characteristics for DELTA-XX PLUS® UNIVERSAL wind barrier are shown in table 2.

Properties related to fire

DELTA-XX PLUS® UNIVERSAL wind barrier has a reaction to fire class E according to EN 13501-1.

Durability

DELTA-XX PLUS® UNIVERSAL wind barrier is considered to have satisfactory durability based on laboratory testing before- and after accelerated artificial climate ageing.

The product must be protected against direct exposure to UV radiation in the complete construction. DELTA-XX PLUS® UNIVERSAL wind barrier must be covered as soon as possible after installation on roofs and walls, without unnecessary delay.

Airtightness

The airtightness of DELTA-XX PLUS® UNIVERSAL wind barrier makes it possible to fulfil any requirements regarding airtightness n_{50} given in the building regulations, and in the Norwegian passive house standards before the vapour barrier is installed.

Environmental aspects

Substances hazardous to health and environment

DELTA-XX PLUS® UNIVERSAL wind barrier contains no hazardous substances with priority in quantities that pose any increased risk for human health and environment.

Waste treatment/recycling

DELTA-XX PLUS® UNIVERSAL wind barrier shall be sorted as plastic. The product shall be delivered to an authorized waste treatment plant for energy recycling.

Environmental declaration

No environmental declaration (EPD) has been worked out for DELTA-XX PLUS® UNIVERSAL wind barrier.

5. Special conditions for use and installation

Design considerations

Cladding, roofing underlay, and/or roofing must be installed as soon as possible after DELTA-XX PLUS® UNIVERSAL wind barrier is installed to prevent that the product is exposed for weather or UV radiation for a longer period. Thermal insulation, vapour barrier and the ceiling should not be installed until roofing has been laid and the underlay is checked to be properly installed.

To avoid reduction of the clamping at the overlaps, due to shrinkage of the timber, the moisture content of studs, rafters and battens should be less than 20% when installing the roofing underlay.

Installation

DELTA-XX PLUS® UNIVERSAL wind barrier shall be installed on the external side of heat-insulated wall- or roof constructions. All joints shall have a minimum of 100 mm overlap. All joints without adhesive strips, edges and connections to other components shall be clamped against the studs, sills, rafters etc. with battens fixed with nails or screws spaced at maximum 150 mm.

DELTA-XX PLUS® UNIVERSAL wind barrier must be mounted tightly to avoid folds which touch wooden sheathing or wall cladding.

In roofs DELTA-XX PLUS® UNIVERSAL wind barrier shall be installed with airtight joints at ridges, eaves, and valley gutters. Battens shall be fixed in a way that ensures sufficient clamping for the joints of DELTA-XX PLUS® UNIVERSAL wind barrier. There should not be used battens thicker than 36 mm for clamping.

The application shall follow the principles shown in the manufacturer's installation guidelines and in SINTEF Building Research Design Guides 523.255 *Yttervegger av bindingsverk, Varmeisolering og tetting*, 525.101 *Skrå, luftede tretak med isolerte takflater*, 520.308 *Yttervegger og tak i trehus med 30 minutters brannmotstand* and 520.322 *Brannmotstand for vegger av tre, mur og betong*.

Transport and storage

DELTA-XX PLUS® UNIVERSAL wind barrier shall be stored dry, on a clean and plane surface protected with wrapping and shielded from direct sunlight.

6. Factory production control

DELTA-XX PLUS® UNIVERSAL wind barrier is produced by Dörken GmbH & Co. KG, Wetterstr. 58, 58313 Herdecke, Germany.

The holder of the approval is responsible for the factory production control to ensure that DELTA-XX PLUS® UNIVERSAL is produced in accordance with the preconditions applying to this approval.

The manufacturing of the product(s) and the manufacturer's system for factory production control (FPC) is subject to continuous surveillance in accordance with the contract regarding SINTEF Technical Approval.

The manufacturer's quality management system is certified by TÜV Rheinland Cert GmbH according to EN ISO 9001.

7. Basis for the approval

The evaluation of DELTA-XX PLUS® UNIVERSAL wind barrier is based on reports owned by the holder of the approval.

8. Marking

DELTA-XX PLUS® UNIVERSAL shall be marked on the wrapping of each roll with the brand name, the manufacturer's name and a bar code for product identification. Each roll is marked with the product name and a batch number/production date on the upper side of the wind barrier.

DELTA-XX PLUS® UNIVERSAL wind barrier is CE-marked in accordance with EN 13859-2 and ETA 22/0389.

The approval mark for SINTEF Technical Approval TG 20902 may also be used.

9. Liability

The holder/manufacturer has sole product responsibility according to existing law. Claims resulting from the use of the product cannot be brought against SINTEF beyond the provisions of Norwegian Standard NS 8402

for SINTEF



Hans Boye Skogstad
Approval Manager