

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-07/0173
of 11 October 2017

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

"AQUAPANEL Cement Board Outdoor"

Product family
to which the construction product belongs

Cement-Bonded Board

Manufacturer

Knauf Aquapanel GmbH & Co. KG
Zur Helle 11
58638 Iserlohn
DEUTSCHLAND

Manufacturing plant

901
902
903
904

This European Technical Assessment
contains

13 pages including 7 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 210024-00-0504

This version replaces

ETA-07/0173 issued on 04 February 2013

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Specific part

1 Technical description of the product

The cement bonded board "AQUAPANEL Cement Board Outdoor" is a specific board made of a cement mixture, mineral lightweight aggregates and water. The board is reinforced on both sides with alkali-resistant glass fibre fabric.

The board is coated with a hydrophobic agent to prevent absorption of humidity during the installation (construction phase).

The boards are manufactured with a thickness of 12,5 mm.

The boards are usually available in nominal lengths up to 3000 mm and nominal width up to 1250 mm.

The cement bonded board "AQUAPANEL Cement Board Outdoor" can be classified in category B according to EN 12467.

The boards are used with one of the following fixing elements:

- "AQUAPANEL Maxi Screw SN - needlepoint" according to Annex A1
- "AQUAPANEL Maxi Screw SB - drillpoint" according to Annex A2
- "AQUAPANEL Rustproofed Screw SN - needlepoint" according to Annex A3
- "AQUAPANEL Rustproofed Screw SB - drillpoint" according to Annex A4

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

The cement bonded board "AQUAPANEL Cement Board Outdoor" may be used for non-structural external lining e.g. for walls, facades, rainscreens, suspended ceiling systems or floor constructions.

The performances given in Section 3 are only valid if the cement bonded board "AQUAPANEL Cement Board Outdoor" is 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 cement bonded board "AQUAPANEL Cement Board Outdoor" of at least 50 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.

English translation prepared by DIBt

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

3.1 Mechanical resistance and stability (BWR 1)

The essential characteristics regarding mechanical resistance and stability are included under the Basic Works Requirement safety in use.

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1 according to EN 13501-1 ¹

3.3 Hygiene, health and environment (BWR 3)

Essential characteristic	Performance
Content, emission and/or release	
Substance(s) classified as EU-cat. Carc. 1A/1B. ^{a)}	The product does not contain these dangerous substances. ^{b)}
Substance(s) classified as EU-cat. Muta. 1A/1B. ^{a)}	
Substance(s) classified as EU-cat. Acute Tox. 1, 2 and/or 3; substance(s) classified as EU-cat. Repr. 1A/1B; substance(s) classified as EU-cat. STOT SE 1 and/or STOT RE 1. ^{a)}	
Biocides	Not contained. ^{b)}
Release scenarios regarding BWR 3: IA1, IA2, IA3 (according to EOTA TR 034)	

^{a)} In accordance with Regulation (EC) No 1272/2008.

^{b)} Assessment based on the detailed manufacturer's statements.

3.4 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Thickness	$e = 12,5 \text{ mm} \pm 1,25 \text{ mm}$
Dimension (length and width)	Annex C
Straightness of edges	0,1 % = Level I acc. to EN 12467
Squareness of edges	2 mm/m = Level I acc. to EN 12467
Density	$\rho_{\text{mean}} = 1200 \pm 175 \text{ kg/m}^3$
Moisture content	$H = 10,3 \text{ \% by mass}$
Water impermeability	Passed
Dimensional stability - length	$\delta l_{65,85} = 0,2 \text{ mm/m}$ $\delta l_{65,30} = -0,4 \text{ mm/m}$
Dimensional stability - thickness	$\delta l_{65,85} = 0,02 \text{ \%}$ $\delta l_{65,30} = -0,04 \text{ \%}$
Bending strength	$f_{m,0,k} = 5,0 \text{ N/mm}^2$ $f_{m,90,k} = 8,1 \text{ N/mm}^2$
Bending modulus of elasticity	$E_{m,0,\text{mean}} = \text{No Performance Assessed}$ $E_{m,90,\text{mean}} = \text{No Performance Assessed}$

¹ EN 13501-1

Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests

Essential characteristic	Performance
Pull through resistance - "AQUAPANEL Maxi Screw SN " (Annex A1) - "AQUAPANEL Maxi Screw SB " (Annex A2) - "AQUAPANEL Rustproofed Screw SN " (Annex A3) - "AQUAPANEL Rustproofed Screw SB " (Annex A4)	$f_{\text{head,k}} = 390 \text{ N}$ $f_{\text{head,k}} = 400 \text{ N}$ $f_{\text{head,k}} = 460 \text{ N}$ $f_{\text{head,k}} = 430 \text{ N}$
Impact resistance	$IR_{\text{mean}} = 16,0 \text{ mm/m}$
Water adsorption	$w_a = 21,2 \text{ \% by mass}$
Freeze-thaw resistance for category B	$R_{L,FTC} = 0,91$
Heat-rain resistance for category B	Passed
Warm water resistance for category B	$R_{L,WW} = 0,79$
Soak-dry resistance for category B	$R_{L,SD} = 1,00$
Durability of metal parts	Annex B1

3.5 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal conductivity	$\lambda_{10,\text{tr}} = \text{No Performance Assessed}$
Air permeability	"The "AQUAPANEL Cement Board Outdoor" is not permeable to air."

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

According to Decision 98/437/EC² of the European Commission as corrected³ and amended by the Commission Decision 2001/596/EC⁴ of 08.01.2001 the assessment and verification of constancy of performance system (AVCP system) (see Annex V to Regulation (EU) 305/2011 as amended by the Commission Delegated Regulation (EU) No 568/2014) given in table 1 applies.

² Official Journal of the European Communities L 194 of 10 July 1998

³ Official Journal of the European Communities L 278 of 15 October 1998

⁴ Official Journal of the European Communities L 209 of 02 August 2001

Table 1: AVCP systems

Product	Intended use(s)	Level(s) or Classe(s) of performance	AVCP system
Cement Bonded Board	As internal or external finishes in wall or ceilings subject to reaction to fire regulations	A1*, A2*, B* and C* A1**, A2**, B**, C**, D and E (A1 to E)***, F	1 3 4
	As internal or external finishes in walls or ceilings, as relevant, subject to regulations on dangerous substances	--	3
	As internal or external finishes in walls or ceilings for other uses mentioned in the mandate	--	4
<p>* Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material).</p> <p>** Products/materials not covered by footnote (*).</p> <p>*** Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of Class A1 according to Commission Decision 96/603/EC).</p>			

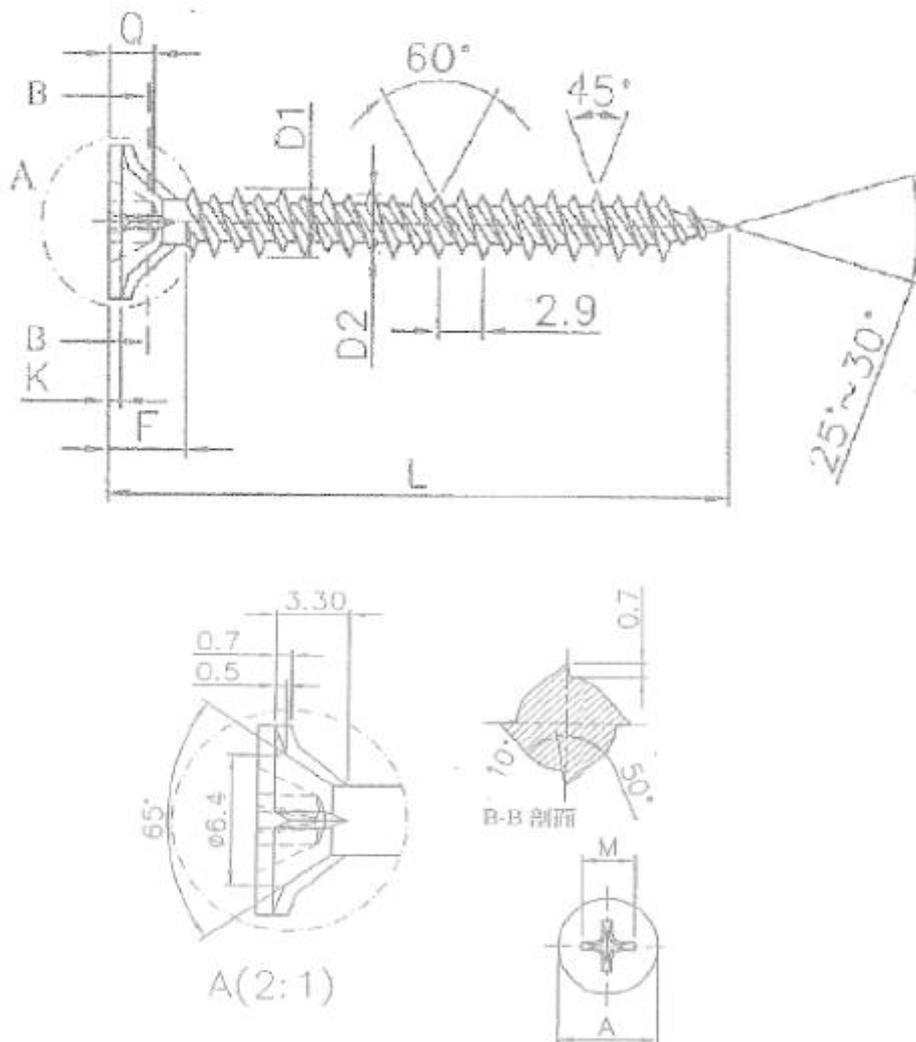
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

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 11 October 2017 by Deutsches Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
Schröder



AQUAPANEL Maxi Screw SN 25 / SN 39/ SN 55 (with needlepoint)

	SN 25	SN 39	SN 55
Screw length [mm]	25	39	55

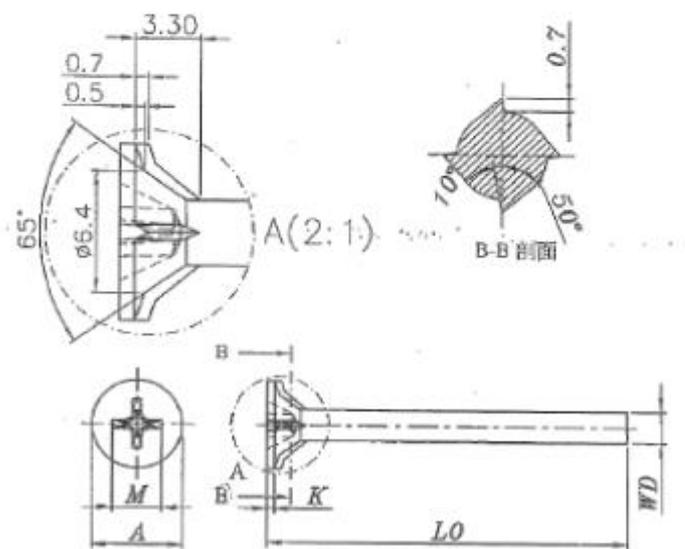
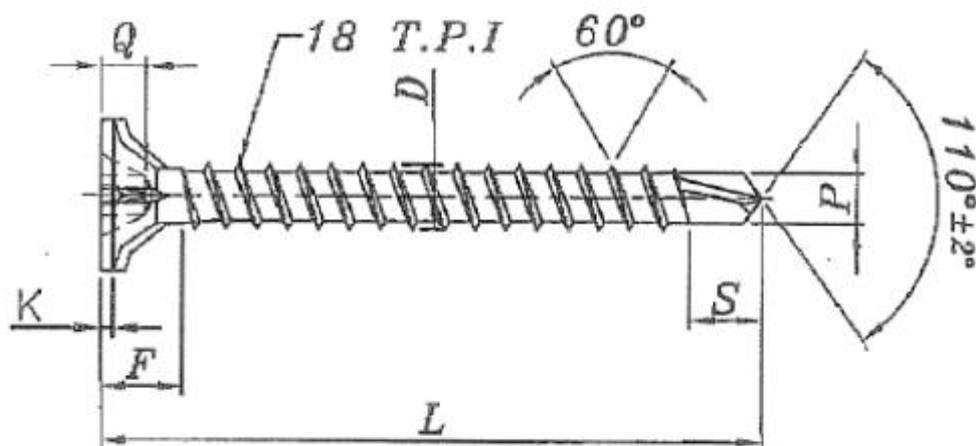
Material: C 22 (similar to Ck22 / Cm22)
Material No.: SAE 1022 (similar to 1.1151 / 1.1149 acc. to EN 10083-2)

Dimensions in mm; without scale

"AQUAPANEL Cement Board Outdoor"

Fastener for the cement bonded board "AQUAPANEL Cement Board Outdoor":
AQUAPANEL Maxi Screw SN (with needlepoint)

Annex A1



AQUAPANEL Maxi Screw SB 25 / SB 39 (with drillpoint)

	SB 25	SB 39
Screw length [mm]	25	39

Material: C 22 (similar to Ck22 / Cm22)
Material No.: SAE 1022 (similar to 1.1151 / 1.1149 acc. to EN 10083-2)

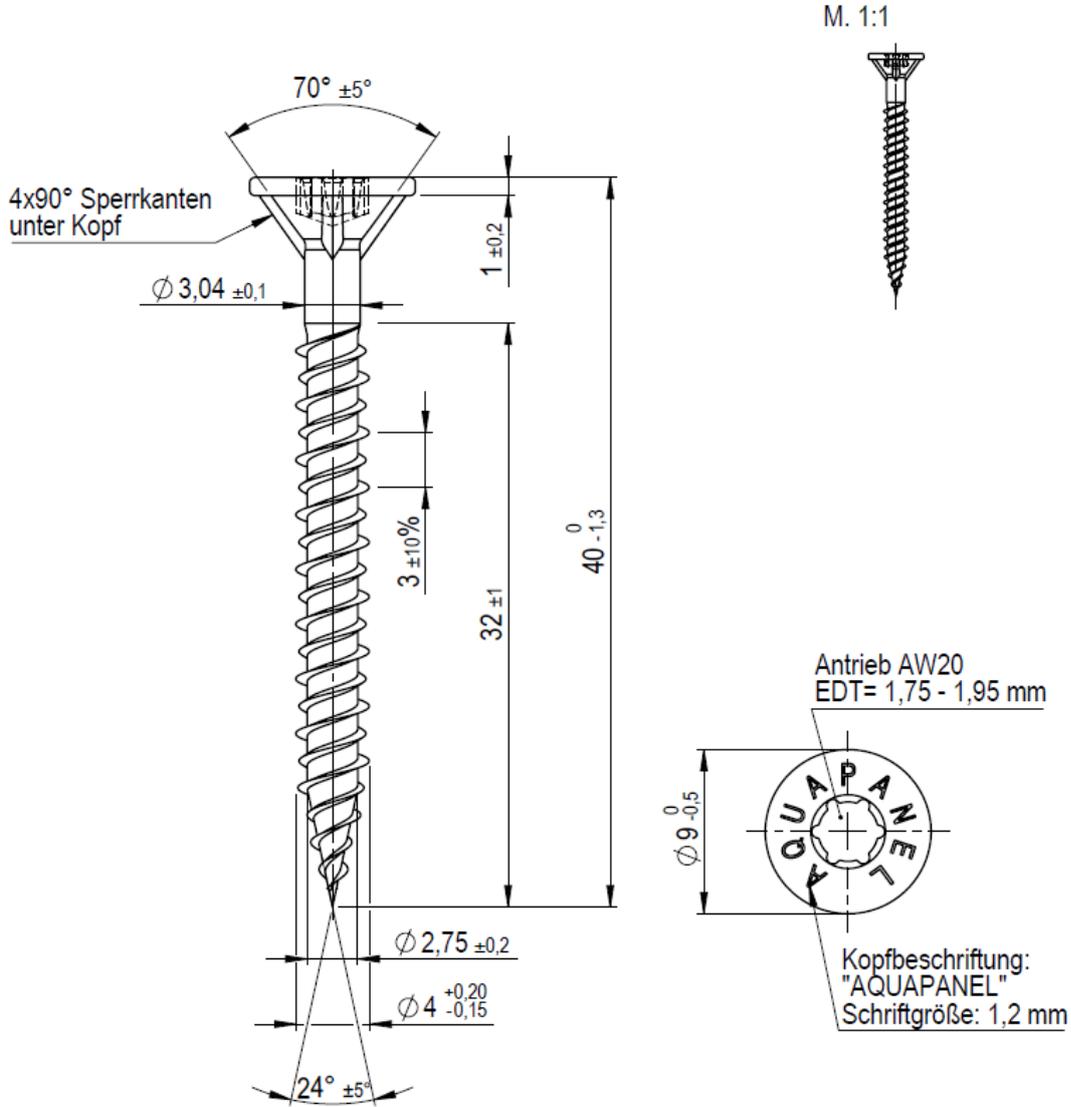
Dimensions in mm; without scale

"AQUAPANEL Cement Board Outdoor"

Fastener for the cement bonded board "AQUAPANEL Cement Board Outdoor":
AQUAPANEL Maxi Screw SB (with drillpoint)

Annex A2

AQUAPANEL Rustproofed Screw SN 40 (with needlepoint)



	SN 40
Screw length [mm]	40

Material: stainless steel (X3CrNiCu18-9-4)
Material No.: 1.4567 according to EN 10088-3

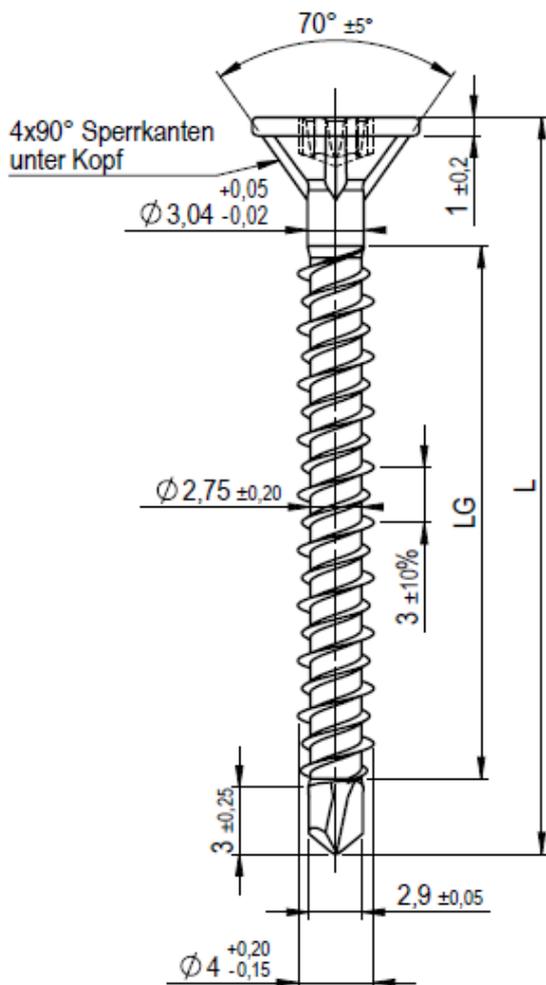
Dimensions in mm; without scale

"AQUAPANEL Cement Board Outdoor"

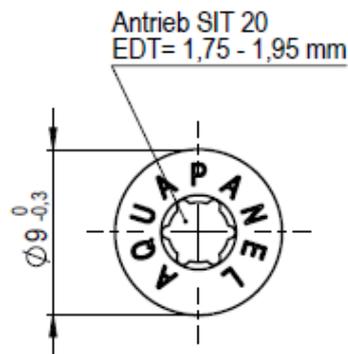
Fastener for the cement bonded board "AQUAPANEL Cement Board Outdoor":
"AQUAPANEL Rustproofed Screw SN 40 (with needlepoint)"

Annex A3

AQUAPANEL Rustproofed Screw SB 25 / SB 40 (with drillpoint)



M. 1:1



	SB 25	SB 40
Screw length [mm]	25	40

Material: stainless steel (X3CrNiCu18-9-4)
Material No.: 1.4567 according to EN 10088-3

Dimensions in mm; without scale

"AQUAPANEL Cement Board Outdoor"

Fastener for the cement bonded board "AQUAPANEL Cement Board Outdoor":
"AQUAPANEL Rustproofed Screw SB (with drillpoint)"

Annex A4

Specification of the intended use

Cement Bonded Board subject to non-structural applications

- lining of building components in outdoor areas
- for manufacturing of floor construction

Use conditions

Cement bonded board

- | | |
|--|---|
| <p>Category B
acc. to EN 12467:</p> | <p>Boards which are intended for applications where they may be subjected to heat, moisture and occasional frost, e.g. where they are either protected from or not subjected to severe weathering conditions.</p> |
| <p>Category C
acc. to EN 12467:</p> | <p>Boards which are intended for internal applications, where they may be subjected to heat and moisture, but not to frost.</p> |
| <p>Category D
acc. to EN 12467:</p> | <p>Boards for rigid underlayer applications.</p> |

Fasteners

- Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition, if no particular aggressive conditions exist (stainless steel)

Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plant or road tunnels where de-icing materials are used)

The fasteners according to Annex A1 and Annex A2 can be used for external applications if the screw head is permanent sealed after the installation against moisture. The fasteners according to Annex A3 and Annex A4 can be used for external applications.

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"AQUAPANEL Cement Board Outdoor"	Annex B1
Specification of the intended use: Use conditions	

Installation

During transport and storage the cement bonded board "AQUAPANEL Cement Board Outdoor" and the components manufactured by using these boards shall be protected against damaging and inadequate moisture, e.g. from precipitation or high building moisture (e.g. covering the boards or the components on all sides with foil to avoid standing water).

Damaged cement bonded boards "AQUAPANEL Cement Board Outdoor" or components manufactured by using these boards may neither be used nor installed.

If cement bonded board "AQUAPANEL Cement Board Outdoor" is processed on site (on-site fabrication), the moisture of the timber substructure may not detrimentally increase until installing the boards (protection from precipitation or high building moisture).

As connecting devices of the cement bonded board "AQUAPANEL Cement Board Outdoor" to the substructure appropriate screws with adequate corrosion protection shall be used, see Annex A1 to Annex A4.

For use of the cement bonded board in direct exposure a suitable protection against weathering shall be added e.g. render system consisting of an undercoat plaster and finishing plaster coat that is not part of this assessment.

The maximum permitted distance of the fasteners is 220 mm.

Expansion joints are placed minimum all 15 m.

For the installation of the cement bonded board "AQUAPANEL Cement Board Outdoor" the information of the manufacturer (instructions for installation) shall be considered.

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"AQUAPANEL Cement Board Outdoor"	Annex B2
Specification of the intended use: Installation	

Table C1: Nominal length of the cement bonded board "AQUAPANEL Cement Board Outdoor"

nominal length	length (target value)	tolerance
mm	mm	mm
≤ 3000	nominal length – 3	900 ≤ l ≤ 1000: Δ l = ± 3
		1000 ≤ l ≤ 1000: Δ l = ± 3 % x l
		L ≥ 1600: Δ l = ± 5

Table C2: Nominal width of the cement bonded board "AQUAPANEL Cement Board Outdoor"

nominal width	length (target value)	tolerance
mm	mm	mm
900	897	Δ l = ± 3
1200	1197	Δ l = ± 3,6
1250	1247	Δ l = ± 3,7

"AQUAPANEL Cement Board Outdoor"

Nominal length and nominal width of the cement bonded board "AQUAPANEL Cement Board Outdoor"

Annex C