Data Sheet

PUR Qju Insulation Board 3881

024–026 ETICS, with groove and tongue, for use in the Brillux ETIC System PUR Qju

Field of application

Insulation board approved in system build-up for use in the Brillux ETIC System PUR Qju. Also suitable for use in the base area including transition into the soil.

Properties

- Facade insulation board made of polyurethane hard foam
- Groove and tongue + special relief-milling for holding the Qju Fixing Bracket 3701
- Extremely high insulation performance
- Fleece-free
- Free of acid and formaldehyde
- Aging-resistant
- Easy to apply
- Diffusible

Material description

Rated thermal conductivity λ_B	0.026 W/(m·K) for thicknesses of < 8 cm 0.025 W/(m·K) for thicknesses of 8 and 10 cm 0.024 W/(m·K) for thicknesses of ≥ 12 cm
Rated value of the thermal conductivity λ_D	0.025 W/(m·K) in accordance with EN 13165, for thicknesses of < 8 cm 0.024 W/(m·K) in accordance with EN 13165, for thicknesses of 8 and 10 cm 0.023 W/(m·K) in accordance with EN 13165, for thicknesses of ≥ 12 cm
Reaction to fire	Flammable in accordance with DIN 4102 in the Brillux ETIC system PUR Qju.
Water vapor diffusion resistance value μ	50/100 in accordance with DIN EN 12086
Tensile strength perpendicular to the board plane	≥ 100 kPa in accordance with DIN EN 1607

Brillux ..more than paint

Material description

Length and width tolerance ± 2 mm/m

Thickness tolerance ± 1 mm

Board evenness ± 3 mm/m

Perpendicularity ± 2 mm/m

Edge formation Insulation thicknesses ≥ 5 cm with groove and tongue all around at a constant distance from the front edge of the board and special relief-milling. Insulation thicknesses of ≤ 4 cm have a flat edge without any relief-milling.

Insulation board format Length: 100 cm / Width: 50 cm
(Working dimension: 98.8 cm / 48.8 cm)

Thicknesses/packaging

Insulation board thicknesses	m² per pack
2 cm [1)]	approx. 12.0 m²
3 cm [1)]	approx. 8.0 m²
4 cm [1)]	approx. 6.0 m²
5 cm	approx. 4.5 m²
6 cm	approx. 4.0 m²
8 cm	approx. 3.0 m²
10 cm	approx. 2.0 m²
12 cm	approx. 2.0 m²
14 cm	approx. 1.5 m²
16 cm	approx. 1.5 m²
18 cm	approx. 1.0 m²
20 cm	approx. 1.0 m²
22 cm	approx. 1.0 m²
24 cm	approx. 1.0 m²
26 cm	approx. 1.0 m²
28 cm	approx. 1.0 m²
30 cm	approx. 1.0 m²

[1)] with flat edge without any relief-milling.
Further insulation board thicknesses on request.

Storage

Store in a dry place and protect from moisture. Do not leave it unprotected and exposed to intensive sunlight for an extended period of time.

Use

Substrate preparation

Follow the instructions in the respective PUR Qju system description.

Bonding

Bond the PUR Qju Insulation Board 3881 with Qju Adhesive Foam 3700 according to the specifications in the respective PUR Qju system description. Follow the instructions in the Data Sheet for the Qju Fixing Component 3700.
Cover insulation boards bonded to the facade with reinforcement plaster as soon as possible in compliance with the drying times. Weathered insulation boards that are not protected for long periods tend to chalk on the surface and must be sanded before further treatment. Completely remove all of the sanding dust and pretreat the sanded areas with Render Primer 3710. When using insulation boards in the base area, including the transition into the soil, the PUR Qju insulation board must be bonded with BaseTec 3540. Follow the instructions in the BaseTec 3540 Data Sheet, as well as the ETICS detailed drawings.

Application temperature

Do not install at air and object temperatures above +30 °C; also during the curing time.

Cutting insulation boards to size

Individual insulation boards can be cut using the Mineral Wool Cutting Tool 1900 M-24 1446 or the PUR/MW Insulation Material Saw 1142. Further information can be found in the Brillux tool product range.

Anchoring

Depending on the substrate situation, a distinction is made between the following for anchoring the PUR Qju insulation boards:
a) bonded and structurally anchored
b) bonded and anchored with statically-relevant anchoring

a) bonded and structurally anchored

Additional structural anchoring of the bonded PUR Qju insulation boards with ETICS anchors is recommended on solid, load-bearing substrates, e.g., concrete or brickwork with intact, fixed adhesive coating, decorative plaster, among others.

Anchor quantity
Based on the long-term practical experience and application, a total of 6 anchors/m² has proved to be adequate. Please also refer to "Anchor arrangement" below.

b) bonded and anchored with statically-relevant anchoring

Statically relevant anchoring must be implemented on all substrates, for which an expert examination and assessment has revealed that they do not have sufficient tear strength, in accordance with the national technical approval Z-33.41-1249. Approved ETICS anchors must be used for this purpose. Substrate unevennesses of up to max. 2 cm/m can be bridged for statically-relevantly anchored ETICS insulation boards. 2 cm/m.

Determining wind load

The wind loads for statically relevant anchoring must be calculated in accordance with DIN EN 1991-1-4/NA. The anchor quantities can be stipulated in line with the information below in accordance with calculated max. wind loads depending on the anchor load class.

Determining the anchor quantities

Across-the-board assumption of anchor quantities
The anchor quantity can also be stipulated across the board for buildings with a rectangular layout with the aid of Tables 1a – 1c below as a function of the building height by solely determining the wind zone. A detailed calculation of the wind load must be performed for all other buildings. This results in a reduction of the number of anchors in some cases.

In accordance with the determined wind load
The number of anchors for the statically-relevant anchoring of the PUR Qju insulation boards can be determined using the calculated wind loads based on table 2 below.

Table 1a
Anchor quantities are generally assumed for buildings with a height of ≤ 10 m for the statically-relevant anchoring of the PUR Qju Insulation Board 3881

Required amount of anchors per m² (surface and edge area) depending on the calculated wind zone and the insulation thickness [1)].

Anchor mounting	general	flush with the surface Mounting			recessed mounting with shortened cutting blade [a)]			recessed mounting with long cutting blade [b)]	
Insulation thickness [cm]	≥ 6	≥ 9	≥ 10		≥ 8	≥ 12		≥ 14	
Anchor load class [kN]	≥ 0.15	≥ 0.20	≥ 0.20	≥ 0.25	≥ 0.20	≥ 0.20	≥ 0.25	≥ 0.20	≥ 0.25
Wind zone 1 Inland	6	6	4	4	6	4	4	4	4
Wind zone 2 Inland	8	6	6	6	6	6	6	6	6
Wind zone 2 Coasts of and islands in the Baltic Sea	10	8	8	6	8	8	6	8	6
Wind zone 3 Inland	8	8	6	6	8	6	6	6	6
Wind zone 3 Coasts of and islands in the Baltic Sea	12	10	8	8	10	8	8	8	8
Wind zone 4 Inland	10	10	8	8	10	8	8	8	8
8 Wind zone 4 Coasts of and islands in the Baltic Sea	14	12	10	10	12	10	10	10	10
Wind zone 4 Islands in the North Sea	14	12	12	10	12	12	10	12	10

[1)] Anchor arrangement according to the overview below.
[a)] Recessed mounting with STR-Tool 2GE 3489 with shortened cutting blade (approx. 5 mm)
[b)] Recessed mounting with STR-Tool 2GE 3489 with long cutting blade (approx. 20 mm)

In the across-the-board assumption of anchor quantities presented here, more anchors may be used than would be required following a precise calculation.

Anchoring

Table 1b
Across-the-board anchor quantities for buildings with heights > 10 m to ≤ 18 m for the statically-relevant anchoring of the PUR Qju Insulation Board 3881

Required amount of anchors per m² (surface and edge area) depending on the calculated wind zone and the insulation thickness [1].

Anchor mounting	general	flush with the surface Mounting			recessed mounting with shortened cutting blade [a]			recessed mounting with long cutting blade [b]	
Insulation thickness [cm]	≥ 6	≥ 9	≥ 10		≥ 8	≥ 12		≥ 14	
Anchor load class [kN]	≥ 0.15	≥ 0.20	≥ 0.20	≥ 0.25	≥ 0.20	≥ 0.20	≥ 0.25	≥ 0.20	≥ 0.25
Wind zone 1 Inland	8	6	6	6	6	6	6	6	6
Wind zone 2 Inland	8	8	6	6	8	6	6	6	6
Wind zone 2 Coasts of and islands in the Baltic Sea	10	10	8	8	10	8	8	8	8
Wind zone 3 Inland	10	10	8	8	10	8	8	8	8
Wind zone 3 Coasts of and islands in the Baltic Sea	12	12	10	8	12	10	8	10	8
Wind zone 4 Inland	12	10	10	8	10	10	8	10	8
Wind zone 4 Coasts of and islands in the Baltic Sea	14	12	12	10	12	12	10	12	10
Wind zone 4 Islands in the North Sea	[2]				[2]			[2]	

[1] Anchor arrangement according to the overview below.
[2] The simplified calculation procedure cannot be used here according to the standard. Precise calculations based on the calculated wind load are required.
[a] Recessed mounting with STR-Tool 2GE 3489 with shortened cutting blade (approx. 5 mm)
[b] Recessed mounting with STR-Tool 2GE 3489 with long cutting blade (approx. 20 mm)

In the across-the-board assumption of anchor quantities presented here, more anchors may be used than would be required following a precise calculation.

Anchoring

Table 1c
Across-the-board anchor quantities for buildings with heights > 18 m to ≤ 25 m for the statically-relevant anchoring of the PUR Qju Insulation Board 3881

Required amount of anchors per m² (surface and edge area) depending on the calculated wind zone and the insulation thickness [1].

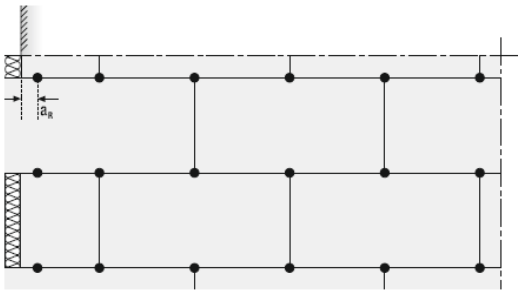
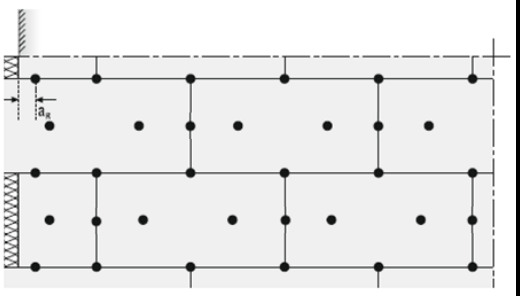
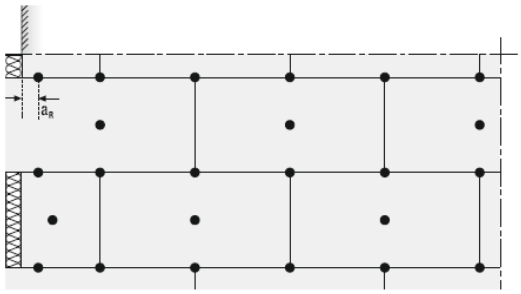
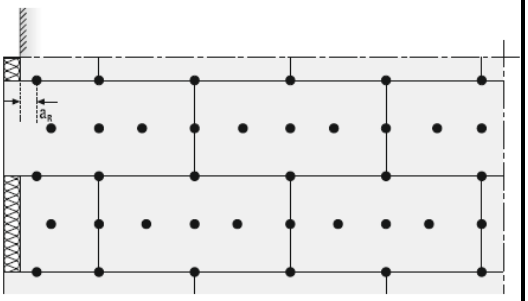
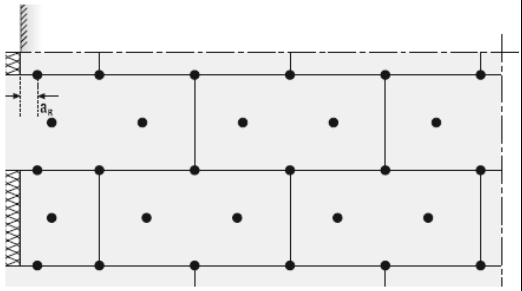
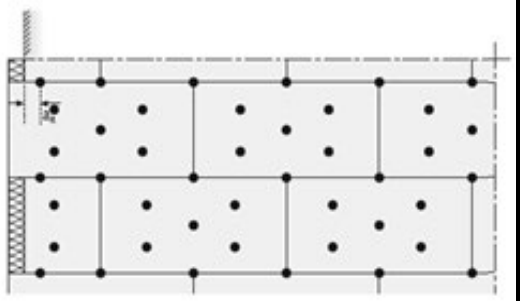
Anchor mounting	general	flush with the surface Mounting			recessed mounting with shortened cutting blade [a]			recessed mounting with long cutting blade [b]	
Insulation thickness [cm]	≥ 6	≥ 9	≥ 10		≥ 8	≥ 12		≥ 14	
Anchor load class [kN]	≥ 0.15	≥ 0.20	≥ 0.20	≥ 0.25	≥ 0.20	≥ 0.20	≥ 0.25	≥ 0.25	≥ 0.20
Wind zone 1 Inland	8	8	6	6	8	6	6	6	6
Wind zone 2 Inland	10	8	8	8	8	8	8	8	8
Wind zone 2 Coasts of and islands in the Baltic Sea	12	10	10	8	10	10	8	8	10
Wind zone 3 Inland	12	10	10	8	10	10	8	8	10
Wind zone 3 Coasts of and islands in the Baltic Sea	14	12	10	10	12	10	10	10	10
Wind zone 4 Inland	14	12	10	10	12	10	10	10	10
Wind zone 4 Coasts of and islands in the Baltic Sea	[2]	14	12	12	14	12	12	12	12
Wind zone 4 Islands in the North Sea	[3]				[3]			[3]	

[1] Anchor arrangement according to the overview below.
[2] No general information possible due to the excessive wind load calculated.
[3] The simplified calculation procedure cannot be used here according to the standard. Precise calculations based on the calculated wind load are required.
[a] Recessed mounting with STR-Tool 2GE 3489 with shortened cutting blade (approx. 5 mm)
[b] Recessed mounting with STR-Tool 2GE 3489 with long cutting blade (approx. 20 mm)

In the across-the-board assumption of anchor quantities presented here, more anchors may be used than would be required following a precise calculation.

Anchoring

Anchor arrangements for statically-relevant anchoring of the PUR Qju Insulation Board 3881 [1)]

Anchors /m²	Anchor arrangement	Anchors /m²	Anchor arrangement
4		10	
6		12	
8		14	

[1)] Deviating anchor arrangements for statically relevant and structural anchoring are not possible. The Brillux consulting service can be consulted for any questions in this regard.

Anchoring

Table 2
Load-bearing capacity table for statically-relevant anchoring of the PUR Qju Insulation Board 3881 *)

Anchor plate	Insulation board thickness [cm]	Anchor load class 1) [kN]	Maximum absorbable wind load w_{ek} [kN/m²]	Anchor number Anchor/m²
Standard Ø 60 mm	≥ 6 a)	≥ 0.15	-0.600	**4**
	≥ 8 b)			
	≥ 10 a)	≥ 0.20	-0.800	
	≥ 12 b)			
	≥ 14 c)			
Standard Ø 60 mm	≥ 6 a)	≥ 0.20	-1.000	**6**
	≥ 8 b)			
	≥ 10 a)	≥ 0.25	-1.300	
	≥ 12 b)			
	≥ 14 c)			
Standard Ø 60 mm	≥ 6 a)	≥ 0.20	-1.400	**8**
	≥ 8 b)			
	≥ 10 a)	≥ 0.25	-1.800	
	≥ 12 b)			
	≥ 14 c)			
Standard Ø 60 mm	≥ 6 a)	≥ 0.20	-1.700	**10**
	≥ 8 b)			
	≥ 10 a)	≥ 0.25	-2.200	
	≥ 12 b)			
	≥ 14 c)			
Standard Ø 60 mm	≥ 6 a)	≥ 0.20	-2.100	**12**
	≥ 8 b)			
Standard Ø 60 mm	≥ 6 a)	≥ 0.15	-2.100	**14**
	≥ 8 b)			

*) This sometimes results in higher load-bearing capacity values in individual cases. The Brillux Consulting Service may be consulted, as required.
1) The determined load for each anchor is decisive for lower load-bearing capacity values.
[Load-bearing capacity for each anchor (calculated pull-out value) x number of anchors = max. absorbable wind load]
a) Only for surface-flush mounting
b) Only for recessed mounting with STR-Tool 2G 3489 with shortened cutting blade (approx. 5 mm)
c) Only for recessed mounting with STR-Tool 2G 3489 with long cutting blade (approx. 20 mm)

Anchoring

Thermal bridge effect through anchoring

When anchoring, the thermal bridge effect of the anchors needs to be taken into account as follows:

$U_c = U + \chi \cdot n$ [in W/(m²·K)]

Where:

U_c = the corrected heat transfer coefficient of the component
U = the heat transfer coefficient of the undisturbed component in W/(m²·K)
χ = point heat transfer coefficient of an anchor in W/K
n = amount of anchors l/m² (average for the facade areas)

It may be possible not to take the thermal bridge effect of the anchors into account, provided that the maximum amount of anchors n per m² of wall surface (the average for the facade areas), as a function of the insulation thickness and the heat transfer coefficient of the anchor, complies with the specifications in the table below.
It may also be possible to ignore this aspect in individual cases if it can be proven that the increase in the undisturbed component's heat transfer coefficient, which results from the thermal bridge effect of the anchors, does not exceed 3%.

Number of anchors per m², up to which no consideration is needed in the U value for anchoring the PUR Qju insulation boards

χ in W/K	Insulation thickness in cm					
	t ≤ 5	5 < t ≤ 10	10 < t ≤ 15	15 < t ≤ 20	20 < t ≤ 25	25 < t
0.002	7	4	2	2	1	1
0.001	13	7	5	4	3	2

Notes

Cables on the exterior wall

If cables are installed on the exterior wall, it is important to mark their paths on the insulation board to avoid damage (resulting from additional mechanical mounting) to them.

Further information

Follow the instructions on the data sheets of the products used.

Remark

This Data Sheet is based on extensive development work and years of practical experience. The translation corresponds to the current German version, in compliance with the German laws, regulations, standards and guidelines. Its content does not constitute a contractual legal relationship. The user/buyer is not released from the responsibility of checking our products to ensure they are suitable for the intended application. In addition, our general terms of business apply.

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