

MW Top Insulation Board 3857



035 WDV, "nichtbrennbar" (non-combustible), precoat on both sides, for use in the Brillux ETIC Systems MW Top and MW Ecotop

Note! Please refer to the note titled "Notification of application for insulation thicknesses > 20 cm" and the reporting form.

Field of application

Insulation board approved in system build-up for use in the Brillux ETIC Systems MW Top and MW Ecotop.

Properties

- Mineral wool insulation boards made of mineral raw materials
- Precoat on both sides
- "Nichtbrennbar" (non-combustible)
- Water-repellent
- Water vapor permeable
- Dimensionally stable under temperature change
- Aging-resistant
- Improving sound insulation as a function of the system build-up
- Marking the exterior using printed lettering
- With two-layer characteristics, which means that the wall side is soft/flexible, the exterior side hard/compacted

Material description

Rated thermal conductivity	$\lambda_B = 0.035 \text{ W/(m}\cdot\text{K)}$
Nominal value of the thermal conductivity	$\lambda_D = 0.034 \text{ W/(m}\cdot\text{K)}$ in accordance with EN 13162
Reaction to fire	Class A1 in accordance with EN 13501-1, "nichtbrennbar" (non-combustible), dimensionally stable up to 1000 °C
Water vapor diffusion resistance value	$\mu = 1,0$ in accordance with DIN EN 12086
Raw density	95–125 kg/m ³ in accordance with EN 1602

Material description

Level of dynamic rigidity	Insulation board thicknesses d s'	
	≥ 6 cm	12 MN/m ³
	≥ 8 cm	9 MN/m ³
	≥ 10 cm	8 MN/m ³
	≥ 12 cm	7 MN/m ³
	≥ 14 cm	6 MN/m ³
Austrian system class	Class 2 in accordance with ÖNORM B 6400	
Length-related flow resistance	≥ 30 kPa · s/m ² in accordance with DIN EN ISO 29053	
Tensile strength perpendicular to the board plane	≥ 5 kPa for the whole board, > 9 kPa for the top layer in accordance with DIN EN 1607	
Length tolerance	± 2 %	
Width tolerance	± 1,5 %	
Thickness tolerance	± 3 / - 1 mm	
Perpendicularity	5 mm/m, corresponds to 2 mm over 50 cm leg length	
Edge design	Edge design	
Insulation board format	Length: 80 cm / Width: 62.5 cm	
Thicknesses/packaging	Insulation board thicknesses	m ² per pack
	6 cm	approx. 2.0 m ²
	8 cm	approx. 1.5 m ²
	10 cm	approx. 1.5 m ²
	12 cm	approx. 1.5 m ²
	14 cm	approx. 1.0 m ²
	16 cm	approx. 1.0 m ²
	18 cm	approx. 1.0 m ²
	20 cm	approx. 1.0 m ²
	22 cm	approx. 0.5 m ²
	24 cm	approx. 0.5 m ²
	26 cm	approx. 0.5 m ²
	28 cm	approx. 0.5 m ²
	30 cm	approx. 0.5 m ²
	For single-layer installation from 6 to 30 cm. Add additional boards on top for insulation thicknesses > 30 to 40 cm. Follow the instructions for two-layer bonding.	
	On request, can also be supplied as a rustic stone board in three groove formats. In this context, follow the instructions in the "Rustic stone board" section.	

Storage

Store in a dry place and protect from moisture. Do not expose to natural weathering.

Substrate preparation	Follow the instructions in the relevant system description MW Top or MW Ecotop.
Adhesive application	<p>The MW Top Insulation Boards 3857 may only be installed such that the compacted top layer of the insulation board faces away from the substrate or pointing outwards. To this end, ensure that the insulation boards with the marked exterior (printed lettering) are bonded such that they face outwards.</p> <p>Adhesion to brickwork and concrete by means of the edge-beading lump method Apply an adequate quantity of the mixed adhesive mortar with a stainless steel trowel on the rear side of the MW Top Insulation Board 3857, as a continuous strip around the edge and as adhesive dots in the middle. A bonding area of at least 40% must be achieved when applying the insulation board.</p> <p>Mechanical adhesive application to brickwork and concrete Alternatively, the adhesive can be applied mechanically to a partial area. When applying the adhesive mortar in beads to the substrate, at least 50% of the surface must be covered by strips of mortar. The mortar beads should have a width of approx. 3 to 5 cm and the spacing between the adhesive beads must not exceed 10 cm.</p> <p>Adhesive application with a notched trowel on even substrates and/or board materials Apply the mixed adhesive mortar over the entire surface of the load-bearing, even substrate manually or mechanically and comb it through it with a notched trowel, e.g. 10 x 10 mm or 15 x 15 mm immediately before positioning the MW Top Insulation Board 3857. For use of ETICS Poly Adhesive 3574 with a notched trowel 4 x 6 x 4 mm.</p> <p>The insulation boards must be applied to or pressed into the fresh adhesive mortar bed immediately, within 10 minutes at the latest, then moved back and forth slightly on the substrate ("bedded in") and pressed on. Skin formation on the adhesive must be avoided. The adequate bonding and consumption can be verified by removing a installed insulation board. Follow the instructions in the data sheet for the relevant adhesive mortar. Bond the MW Top Insulation Board 3857 in accordance with the instructions in the relevant MW Top or MW Ecotop system description. Protect insulation boards that have been recently attached to the facade from weathering, e.g., direct sunlight at high summer temperatures, rain and hail, by taking appropriate measures or coat them as soon as possible with reinforcement plaster.</p>
Double-laying	For double-laying, a maximum of two insulation panels are to be glued together, each up to a maximum thickness of 20 cm. The same specifications apply as to single layers, whereby the second layer is only to be glued with mineral adhesive mortar. The first layer is not anchored. When determining the required anchor length, the thickness of the adhesive layers must also be taken into account.

Maximum field sizes for thicknesses > 20 cm

For laying thicknesses >20 cm, the maximum sizes for contiguous surfaces without expansion joints are to comply with the values provided in the following table.

Maximum field sizes

System build-up	Maximum field size ¹⁾	Maximum plaster weight (wet)
Thick-layer system (>8 to 25 mm total plaster thickness)	7.5 m x 7.5 m	30 kg/m ²
Thin-layer system (up to 8 mm total plaster thickness)	50 m x 25 m	22 kg/m ²

¹⁾ Maximum contiguous surface without expansion joint. For larger contiguous surfaces, appropriate expansion joints must be taken into consideration. The appropriate field sizes for this must be defined by the planner on an object-specific basis. The Brillux Consulting Service should be consulted about this.

Application temperature

Please refer to the information in the data sheet for the adhesive used.

Cutting insulation boards to size

Individual insulation boards can be cut to size using the 1900 M-24 1446 mineral wool cutter or the 1142 PUR/MW insulation saw. Additional information can be found in the Brillux tool product range.

The following information for anchoring is only applicable in the ETIC systems MW Top and MW Ecotop with render coating. When using ceramic coverings of natural stone as a top coat, it is important to follow the specific instructions on anchoring in accordance with the German national technical approval (abZ) and the German general construction technique permit (aBG) No. Z-33.46-1327 and the instructions for the relevant system description. The following information for anchoring is not applicable for this.

For installation of the ETIC systems MW Top and MW Ecotop with render coating, the MW Top Insulation Boards 3857 must have statically-relevant anchoring in accordance with abZ/aBG No. Z-33.43-257 or Z-33.47-865 on all substrates. 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. The following information is based on anchoring below the fabric. For double-layer installation, the anchors must be fixed through the entire insulation material thickness. The thickness of the additional second adhesive layer must be taken into account when determining the anchor length. Follow the instructions in the relevant system description for MW Top or MW Ecotop.

Determining wind load

The characteristic wind loads w_{ek} for anchoring must be calculated in accordance with the technical building regulations. According to the calculated wind loads, the required anchor quantities can be determined while considering the characteristic load-bearing capacity of anchors in compliance with the information below. The information about anchors with $N_{Rk} > 0.75$ kN also applies for screw fasteners in timber construction.

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 compliance with the information below in accordance with calculated max. wind loads as a function of the anchor load class. In conjunction with the ETICS Anchor Washer 3711, type VT 90 (Ø 90 mm) or for countersunk anchor mounting with type VT 2G (Ø 112 mm), significantly higher resistances to wind load are usually achieved. This means that fewer anchors are required than with countersunk mounting with the STR-Tool 2GE 3489.

Determining the anchor quantities

Across-the-board assumption of anchor numbers

The anchor number can also be stipulated across the board for rectangular buildings with the aid of Tables 1a, 1b and 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.

After determining the wind load

The number of anchors for the statically-relevant anchoring of the MW Top Insulation Boards can be determined using the calculated wind loads based on Table 2 below.

Table 1a

Across-the-board anchor numbers are generally assumed for buildings up to a height of ≤ 10 m for the statically-relevant anchoring of the MW Top Insulation Board 3857

The required number of anchors per m² (surface and edge area) as a function of the calculated wind zone and the insulation thickness ¹⁾

Insulation thickness [cm] ⁵⁾	≥ 8 to ≤ 20			> 20 to 40	≥ 8 to ≤ 20
N _{Rk} , Anchor [kN] ²⁾	≥ 0.75 [kN]	≥ 0.60 [kN]	≥ 0.5 [kN]	≥ 0.60 [kN]	≥ 0.36 [kN]
Anchor washer	VT 90 or VT 2G ³⁾			VT 90 or VT 2G ³⁾	countersunk Ø 60 mm ⁶⁾
Wind Zone 1 Inland	4	4	6	6	8
Wind Zone 2 Inland	4	6	6	6	8
Wind zone 2 Coasts and islands in the Baltic Sea	6	8	8	8	12
Wind Zone 3 Inland	6	6	8	8	10
Wind zone 3 Coasts and islands in the Baltic Sea	8	8	10	12	4)
Wind Zone 4 Inland	6	8	10	10	4)
Wind zone 4 Coasts and islands in the Baltic Sea	8	10	12	4)	4)
Wind Zone 4 Islands in the North Sea	10	12	14	4)	4)

¹⁾ Anchor arrangement in accordance with the overview below.

²⁾ Characteristic load-bearing capacity of the anchor in the substrate.

³⁾ Additional use of the ETICS Anchor Washer 3711, type VT 90 (Ø 90 mm) or for countersunk anchor installation with type VT 2G (Ø 112 mm).

⁴⁾ No general information possible due to the excessive wind load calculated.

⁵⁾ For insulation thicknesses < 8 cm, contact the Brillux Consulting Service to clarify the load-bearing capacity values.

⁶⁾ For countersunk installation with the ETICS Sunk Anchor STR U 2G 3811 in conjunction with the STR Tool 2GS 3489

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

Table 1b

Across-the-board anchor quantities for buildings with heights > 10 m to ≤ 18 m for the statically-relevant anchoring of the MW Top Insulation Board 3857

The required number of anchors per m² (surface and edge area) as a function of the calculated wind zone and the insulation thickness ¹⁾

Insulation thickness [cm] ⁶⁾	≥ 8 to ≤ 20			> 20 to 40	≥ 8 to ≤ 20
N _{Rk} , Anchor [kN] ²⁾	≥ 0.75 [kN]	≥ 0.60 [kN]	≥ 0.5 [kN]	≥ 0.60 [kN]	≥ 0.36 [kN]
Anchor washer	VT 90 or VT 2G ³⁾			VT 90 or VT 2G ³⁾	countersunk Ø 60 mm ⁷⁾
Wind Zone 1 Inland	4	6	6	6	8
Wind Zone 2 Inland	6	6	8	8	10
Wind zone 2 Coasts and islands in the Baltic Sea	6	8	10	10	4)
Wind Zone 3 Inland	6	8	10	10	12
Wind zone 3 Coasts and islands in the Baltic Sea	8	10	12	4)	4)
Wind Zone 4 Inland	8	10	12	4)	12
Wind zone 4 Coasts and islands in the Baltic Sea	10	12	14	4)	4)
Wind Zone 4 Islands in the North Sea	5)	5)	5)	5)	5)

¹⁾ Anchor arrangement in accordance with the overview below.

²⁾ Characteristic load-bearing capacity of the anchor in the substrate.

³⁾ Additional use of the ETICS Anchor Washer 3711, type VT 90 (Ø 90 mm) or for countersunk anchor installation with type VT 2G (Ø 112 mm).

⁴⁾ No general information possible due to the excessive wind load calculated.

⁵⁾ According to the relevant standard, the simplified calculation procedure cannot be used in this case. Precise calculations based on the calculated wind load are required.

⁶⁾ For insulation thicknesses < 8 cm, contact the Brillux Consulting Service to clarify the load-bearing capacity values.

⁷⁾ For countersunk installation with the ETICS Sunk Anchor STR U 2G 3811 in conjunction with the STR Tool 2GS 3489

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

Table 1c

Across-the-board anchor quantities for buildings with heights > 18 m to ≤ 25 m for the statically-relevant anchoring of the MW Top Insulation Board 3857

The required number of anchors per m² (surface and edge area) as a function of the calculated wind zone and the insulation thickness ¹⁾

Insulation thickness [cm] ⁶⁾	≥ 8 to ≤ 20			> 20 to 40	≥ 8 to ≤ 20
N _{Rk} , Anchor [kN] ²⁾	≥ 0.75 [kN]	≥ 0.60 [kN]	≥ 0.5 [kN]	≥ 0.60 [kN]	≥ 0.36 [kN]
Anchor washer	VT 90 or VT 2G ³⁾			VT 90 or VT 2G ³⁾	Countersunk Ø 60 mm ⁷⁾
Wind Zone 1 Inland	6	6	8	8	10
Wind Zone 2 Inland	6	8	8	8	12
Wind zone 2 Coasts and islands in the Baltic Sea	8	10	10	12	4)
Wind Zone 3 Inland	8	10	10	12	4)
Wind zone 3 Coasts and islands in the Baltic Sea	8	10	12	4)	4)
Wind Zone 4 Inland	8	10	12	4)	4)
Wind zone 4 Coasts and islands in the Baltic Sea	5)	5)	5)	4)	4)
Wind Zone 4 Islands in the North Sea	5)	5)	5)	5)	5)

¹⁾ Anchor arrangement in accordance with the overview below.

²⁾ Characteristic load-bearing capacity of the anchor in the substrate.

³⁾ Additional use of the ETICS Anchor Washer 3711, type VT 90 (Ø 90 mm) or for countersunk anchor installation with type VT 2G (Ø 112 mm).

⁴⁾ No general information possible due to the excessive wind load calculated.

⁵⁾ According to the relevant standard, the simplified calculation procedure cannot be used in this case. Precise calculations based on the calculated wind load are required.

⁶⁾ For insulation thicknesses < 8 cm, contact the Brillux Consulting Service to clarify the load-bearing capacity values.

⁷⁾ For countersunk installation with the ETICS Sunk Anchor STR U 2G 3811 in conjunction with the STR Tool 2GS 3489

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

Anchor arrangements for statically-relevant anchoring of the MW Top Insulation Board 3857

Anch or /m	Anchor arrangements	Anch or /m ²	Anchor arrangements
4		10	
6		12	
8		14	

Differing anchor arrangements are possible, but generally result in higher anchor numbers/m². In this context, the Brillux Consulting Service should be consulted.

For odd numbers of anchors, adjacent anchor arrangements are to be used alternately, e.g. for 5 anchors/m², 4 and 6 anchors are to be used alternately for each insulation board.

Table 2

Load-bearing capacity table for statically-relevant anchoring of the MW Top Insulation Board 3857 *)

Anchor washer	Insulation board thickness [mm]	$N_{Rk, \text{Anchor}}^{2)}$ [kN]	Maximum resistance to wind load $w_{ek}^{3)}$ [kN/m ²]	Number of anchors Anchor/m ²
VT 90/VT 2G countersunk ¹⁾	≥ 8 up to ≤ 20	≥ 0.5	-1.000	4
		≥ 0.60	-0.800	
		≥ 0.50	-0.666	
Standard Ø 60 mm countersunk	≥ 8 up to ≤ 20	≥ 0.45	-0.480	
VT 90/VT 2G countersunk ¹⁾	≥ 8 up to ≤ 20	≥ 0.75	-1.500	6
		≥ 0.60	-1.200	
		≥ 0.50	-1.000	
	> 20 up to 40	≥ 0.45	-1.100	
Standard Ø 60 mm countersunk	≥ 8 up to ≤ 20	≥ 0.45	-0.720	
VT 90/VT 2G countersunk ¹⁾	≥ 8 up to ≤ 20	≥ 0.75	-2.000	8
		≥ 0.60	-1.600	
		≥ 0.50	-1.333	
	> 20 up to 40	≥ 0.45	-1.340	
Standard Ø 60 mm countersunk	≥ 8 up to ≤ 20	≥ 0.45	-0.960	
VT 90/VT 2G countersunk ¹⁾	≥ 8 up to ≤ 20	≥ 0.75	-2.200	10
		≥ 0.60	-2.000	
		≥ 0.50	-1.666	
	> 20 up to 40	≥ 0.45	-1.500	
Standard Ø 60 mm countersunk	≥ 8 up to ≤ 20	≥ 0.45	-1.200	
VT 90/VT 2G countersunk ¹⁾	≥ 80 up to ≤ 20	≥ 0.60	-2.200	12
		≥ 0.50	-2.000	
	> 20 up to 40	≥ 0.45	-1.650	
Standard Ø 60 mm countersunk	≥ 8 up to ≤ 20	≥ 0.45	-1.440	
VT 90/VT 2G countersunk ¹⁾	≥ 8 up to ≤ 20	≥ 0.50	-2.200	14

*) Anchor arrangement in accordance with the overview above. Alternatively, surface-flush anchoring without additional ETICS Anchor Washer 3711 is also possible. This usually results in higher anchor numbers/m², however. The Brillux Consulting Service may be consulted, as required.

¹⁾ Additional use of the ETICS Anchor Washer 3711, type VT 90 (Ø 90 mm) or for countersunk anchor installation with type VT 2G (Ø 112 mm).

²⁾ Characteristic load-bearing capacity of the anchor. The maximum permissible anchor quantity is 14 anchors/m². The determined load per anchor is crucial for lower load-bearing capacities.

³⁾ In accordance with the appendix of the aBG/abZ No. Z-33.43-257, an odd number of anchors is also permitted. The maximum absorbable wind load can thus be interpolated in a linear manner.

Anchoring

Thermal bridge effect resulting from anchoring

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

$$U_c = U + \chi \cdot n \quad [\text{in } \text{W}/(\text{m}^2 \cdot \text{K})]$$

Where:

U_c = corrected heat transfer coefficient of the component

U = the heat transfer coefficient of the undisturbed component in $\text{W}/(\text{m}^2 \cdot \text{K})$

χ = point heat transfer coefficient of an anchor in W/K

n = number of anchors l/m^2 (average for the facade areas)

It may not be necessary to take the thermal bridge effect of the anchors into account if the maximum number of anchors n per m^2 of wall surface (the average for the facade areas), as a function of the insulation thickness and the heat transfer coefficient of the anchors, complies with the specifications provided in the table below.

It may also be possible to neglect 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 m^2 , up to which no consideration of the thermal bridge effect is required in the U value with a rated thermal conductivity of the insulation material of $\lambda = 0.035 \text{ W}/(\text{m} \cdot \text{K})$

χ in W/K	Insulation thickness cm				
	$d \leq 10$	$10 < d \leq 15$	$15 < d \leq 20$	$20 < d \leq 25$	$25 < d$
0.002	5	3	3	2	2
0.001	10	7	5	4	3

Notes

Notification of application

According to the abZ/aBG, the installation company is required to report the object data to Brillux when using MW Top Insulation Board 3857 with insulation thicknesses of greater than 20 cm. Please use the following reporting form (reporting of object data) for this purpose.

Safety measures for handling

Avoid contact with eyes and skin. Use dust-tight protective clothing and a P1 dust mask. For mechanical processing and working overhead, wear safety goggles. Avoid stirring up dust - vacuum instead of sweeping in rooms. Do not eat or drink or smoke while working.

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.

Name in abZ/aBG

In the abZ/aBG, the MW Top Insulation Board 3857 is referred to as "MW Top Insulation Board, 035 Coverrock II".

Notes

- Rustic stone boards** On request, the MW Top Insulation Board 3857 can also be delivered as rustic stone board in the following versions as a special order:
- Narrow trapezoidal groove (TS), 3/2 cm wide and 1.5 cm deep
 - Wide trapezoidal groove (TB), 3.5/2 cm wide and 1.5 cm deep
 - Triangular groove (DN), 3/0 cm wide and 1.8 cm deep
- When used as a rustic stone board, the ETICS Rustic Stone Mesh 3608 should also be used as reinforcement in the corresponding groove format. When anchoring the rustic stone boards, a center distance of at least 10 cm must be maintained between the ETICS anchors and the groove.
- Further specifications** 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.

When a new version of this Data Sheet with updated information is published, the previous version no longer applies. The current version is available on our website.

Brillux
Weseler Straße 401
48163 Münster
GERMANY
Phone +49 251 7188-0
Fax +49 251 7188-105
info@brillux.de
www.brillux.com

Reporting of object data for insulation thicknesses > 20 cm

According to the abZ/aBG, the installation company is required to report information about the location and date of installation to Brillux when using MW Top Insulation Board 3857 with insulation thicknesses of greater than 20 cm.

Please send faxes to:
Brillux
Technical Consulting
Service
+49 251 7188-106

a) Location/construction project

Description *)

Postal code City

Street / No.

b) Installation date**c) ETIC System**Scope *) [m²]

Insulation thickness [cm]

1st

layer;

2nd

layer;

Product

MW Top Insulation Board 3857

System manufacturer

Brillux

d) Installation company/user

Company

Date

Signature/Company stamp

*) Optional information