



Instructions for use

Aestuver® Fire-protection board

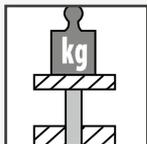
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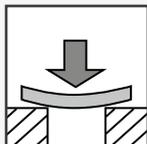
Characterstics



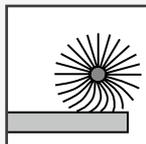
Non-combustible



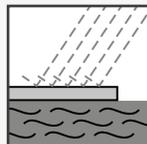
High compressive strength



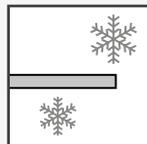
High bending tensile strength



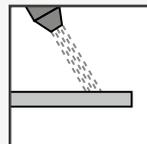
High abrasion resistance



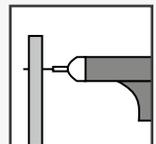
Water resistant



Frost-resistant



Cleanable



Easy to apply

Aestuver® Fire-protection board



Cement-bonded, glass fibre reinforced lightweight concrete boards for high-quality structural fire protection

- weather-, frost- and water-resistant
- no combustible components



Characteristic	
Density ρ_k (dry)	appx. 625 – ca. 965 kg/m ³
Thermal conductivity λ_R acc. to EN 12667 ¹⁾	appx. 0.21 W/mK
Specific thermal capacity c	appx. 0.9 kJ/kgK
Expansion / shrinkage when the relative humidity changes by 30% (20 °C) acc. to EN 318	± 0.1%
Equilibrium humidity at 65% relative humidity and 20 °C air temperature according to DIN EN ISO 12570	appx. 7 wt-%
Alkalinity (pH-value)	appx. 12
Category of use in relation to intended use according to EAD 350142-00-1106	Type 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
Category of use in relation to weathering according to EAD 350142-00-1106	Type Z1, Z2, Y, X

¹⁾ Value as an example for 20 mm board | Data for other board thicknesses on request

Dimensional tolerances for compensation moisture for standard board formats		Approvals	
Length, width	± 1 mm	European Technical Assessment	ETA-11/0458
Diagonal difference	≤ 2 mm	Building material class acc. to EN 13501-1	non-combustible, A1
Thickness	± 1 mm	IMO FTPC part 1	non-combustible

Characteristic values as a relation of the board thickness									
Thickness in mm	10	12	15	20	25	30	40	50	60
Basis weight per m ² in kg (at 7 % moisture)	appx. 10	appx. 10	appx. 12	appx. 15	appx. 18	appx. 22	appx. 28	appx. 34	appx. 41
Density ρ_k in kg per m ³ (dry)	appx. 950	appx. 800	appx. 800	appx. 700	appx. 690	appx. 680	appx. 650	appx. 650	appx. 640
Bending tensile strength in N/mm ² (based on EN 12467 ± 10 %)	5	4	3.5	3.5	3.3	2.8	2.8	2.8	2.8
Flexural modulus of elasticity in N/mm ² (based on EN 12467 ± 10 %)	4300	4200	3450	3000	2750	2400	2250	1900	1450
Compressive strength in N/mm ² (according to EN 789)	20	–*	8.5	9	–*	6.5	6.5	–*	6
Water vapour diffusion resistance index μ according to EN ISO 12572	36	–*	25	54	–*	–*	–*	–*	25
Airborne sound insulation R_w in dB according to DIN 52210	appx. 31	–*	–*	appx. 31	–*	–*	appx. 36	–*	appx. 39

Dimensions in mm **									
2600 × 1250	●	●	●	●	●	●	●	●	●

*no values determined | ** Other panel thicknesses, lengths (up to 3000 mm), widths (up to 1250 mm) and cuts on request

Board storage and transport

Aestuver® fire protection boards are delivered horizontally packed on pallets. The boards should always be stored flat on a level surface. Storage on edge can lead to deformation of the boards and damage to the edges.

If the board stacks are placed on ceilings, it is essential to observe their load-bearing capacity. Outdoor storage is possible due to frost and water resistance. However, due to the subsequent surface treatment and if boards are fixed to rigid substructures in the later application, the boards should be provided with a water-repellent cover and external contamination due to construction site operations should be excluded.

Horizontal board transport is possible with lift trucks or other board transport trolleys. Manual carrying of the boards is facilitated by tools, e.g. panel lifters / carriers. If these tools are not available, the workers should wear gloves.

Single boards are always on edge to be carried upright.



Aestuver® fire-protection boards are installed with rail-guided hand-held circular saw

Cutting and processing

The Aestuver® fire protection board is cut to size using a conventional rail-guided hand-held circular saw with suction (preferably as a plunge-cut saw) or with stationary panel-sizing saws **1**.

For precise and sharp-edged cuts, the use of carbide-tipped saw blades with alternating teeth is recommended. The dust content is reduced by using saw blades with a small number of teeth and at low speeds. Further processing, such as creating curves and adjustments, can be carried out with a jigsaw / router or with a cavity can drill.

In the stationary sector, CNC machining centres are mainly used. This makes it possible to produce precisely fitting components and panel cuts. As is usual in the processing of panel materials, we recommend the use of suction devices with overtravel.

Fasteners and spacing

For screw connections, we recommend the use of drywall screws with milled ribs on the countersunk head. All commercially available makes are suitable for connections with resin-coated staples.

To avoid surface damage, staplers should always be operated with drive-in limiters according to the manufacturer's instructions. Screwing or stapling is possible in the panel surface as well as in the panel edge.

Joint design

Aestuver® fire protection panels are basically butt-jointed only (joint width ≤ 1 mm) and, depending on the surface requirements, provided with an appropriate system for further surface build-up.

- Existing movement joints must be adopted
- Separations of the construction must also be separated in the planking

Surface design

General

Due to the smooth surface of the visible side of Aestuver® fire protection boards, it is not necessary to fill the alkaline substrate for most surface finishes. However, we recommend priming with a deep primer if the surfaces are to be painted or varnished. Filling, painting and varnishing are possible with commercially available dispersion, synthetic resin or acrylic-based products.

If the planned use places demands on the surface - i.e. no visible butt joints - then a full-surface plaster / trowel application with integrated embedded reinforcement mesh should be applied.

Surface design in outdoor areas

Aestuver® fire protection boards have a hard, smooth, exposed concrete-like surface. Use in outdoor areas exposed to weathering is permitted in accordance with ETA 11/0458. Standing moisture on the boards or the penetration of water between the individual board layers should be avoided. In case of permanent moisture penetration, cement-bonded boards tend to change the colour of the surface in the form of efflorescence. We therefore recommend one of the following measures we recommend one of the following measures:

Coating the surfaces with plaster technology

The fermacell® Powerpanel HD render system is used for coating the Aestuver® fire-protection board with a render technique **2**.

System components:

- a** fermacell™ Powerpanel HD Joint reinforcement Tape
- b** fermacell™ Powerpanel HD Joint Adhesive
- c** fermacell™ Powerpanel HD Light Mortar
- d** fermacell™ Powerpanel HD Joint reinforcement Mesh

Step 1: Applying the fermacell™

Powerpanel HD Joint reinforcement Tape

- Remove protective film
- Press the reinforcement tape centrally onto the dry, tightly butted board joints using a smoothing trowel.
- Overlap the reinforcement tape at least 50 mm overlap

Step 2: fermacell™ Powerpanel HD Joint Adhesive

- Apply the adhesive to the entire width of the reinforcement tape.
- Application method: Brush or roll
- Fasteners in the board surface that are not covered by the fermacell™ Powerpanel HD Joint reinforcement Tape must also be provided with at least one layer of the fermacell™ Powerpanel HD Joint Adhesive (complete covering of the fastener).

Notes:

- Do not apply in strong winds and direct sunlight.
- Protect processed reinforcing adhesive from rain, extreme humidity and frost until completely dry - Processing temperature: $\geq 5^{\circ}\text{C}$ for panel surface and surrounding air during application and drying.
- Drying (at $+20^{\circ}\text{C}$ and 50% rel. humidity): Can be recoated after approx. 24 hours.

Step 3: Application of fermacell™

Powerpanel HD Light Mortar

- Mix the light mortar properly with all standard plastering machines or by hand with a stirrer using the specified amount of water (according to the container label).
- After sufficient drying of the previously carried out reinforcement measures, the fermacell™ Powerpanel HD Light Mortar is applied over the entire surface in web widths of the reinforcement mesh. This is applied with a suitable notched trowel in such a way that the layer thickness of the reinforced light mortar is 5–6 mm

Anmerkungen:

- Protect fresh plaster surfaces from rain, premature drying due to wind and direct sunlight.
- Working temperature: $\geq +5^{\circ}\text{C}$ for board surface and surrounding air during application and drying.
- Working time: within approx. 1.5 hours (depending on addition of water and weather conditions; stir mortar occasionally without further addition of water)

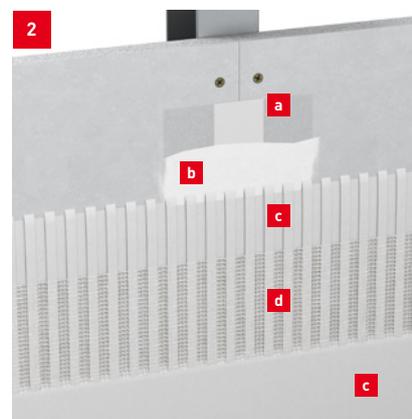
Step 4: Laying the fermacell™

Powerpanel HD Joint reinforcement Mesh

- Vertical or horizontal installation
- Press in the fermacell™ Powerpanel HD Joint reinforcement Mesh and smooth it into the mortar bed with a smoothing trowel, into the mortar bed, until it is fully covered with mortar and covered with mortar and outer third of the reinforcement layer (base plaster layer).
- Each mesh sheet must be overlapped by at least 100 mm overlap
- At component connections and plaster penetrations Cut in reinforcing mesh to prevent uncontrolled uncontrolled tearing

Notes:

- Before interruptions to the work, the mesh overlap
- for further work prepare the fabric overlap for further work: fermacell™ Powerpanel HD Light Mortar to 100 mm width pull off sharply from the mesh



Components of the fermacell® Powerpanel HD plaster system

Step 5: Final Finish 15.

If no additional finishing render is planned, the fermacell™ Powerpanel HD Light Mortar is applied in two steps as a direct coating with a felted surface, which can also be coated with a facade paint.

- After the reinforcement layer has hardened (1 day), fermacell™ Powerpanel HD Light Mortar is applied in a layer thickness of 2–3 mm and felted. and felt down.

If a finishing plaster is to be applied, must be proven to be compatible with the fermacell system must be proven.

Mineral, diffusion-open finishing plasters are suitable for this. plasters are suitable for this purpose, if a sufficient adhesive bond to the light mortar can be guaranteed. can be guaranteed.

Coatings of the surfaces with filler technique 16

The following are used as trowelled surfaces:

- e** fermacell™ Powerpanel fine surface treatment (layer thickness at least 5 mm)
- f** fermacell™ Powerpanel HD Joint reinforcement Mesh (embedded in it).

With this joint and surface technique, the fermacell™ Powerpanel HD Joint reinforcement Tape overpainted with the fermacell™ Powerpanel HD Joint Adhesive is not used.

Step 1: Apply fine surface treatment

The fermacell™ Powerpanel fine surface treatment is applied with a layer thickness of at least 5 mm applied.

Step 2: Reinforcing mesh HD apply

Into the fermacell™ Powerpanel fine surface treatment the fermacell™ Powerpanel HD Joint reinforcement Mesh in the upper third embedded.

Step 3: Covering the fine surface treatment

Finally, the embedded reinforcement mesh with fermacell™ Powerpanel fine surface treatment over the entire covered over the entire surface.



System structure of the coating with trowel technique

For environments with increased requirements for corrosion protection, special requirements are placed on the quality of the substructure and fasteners. These requirements must be taken into account by the specialist planner - by determining the building materials to be used and suitable protective measures. The specified staple and screw distances are recommendations; if other maximum distances are specified in the technical approval certificates of the associated constructions, these are decisive!

Fastener spacing

	single layer	two-layer	
		1st and 2nd layer in substructure	1st layer in substructure and 2nd layer in board (wall)
1st layer	screw: ≤ 250 mm 2	screws: ≤ 400 mm	screws: ≤ 250 mm
2nd layer	-	screws: ≤ 250 mm	screws: ≤ 250 mm row distance: 400 mm 3 screws: ≤ 150 mm row distance: 400 mm 4

Fastener spacing to board edge

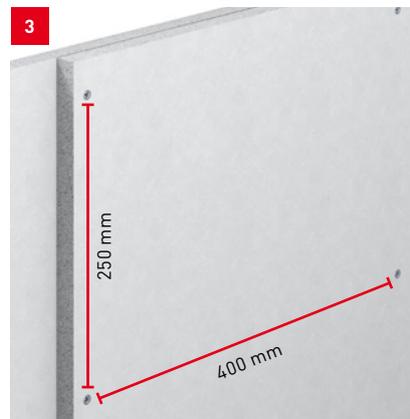
screws 5	staples
horizontal: ≥ 15 mm / vertical: ≥ 40 mm	horizontal: ≥ 10 mm

Fastener spacing for corners

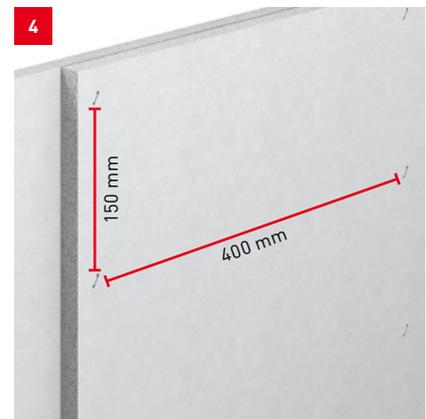
screws	staples
≤ 150 mm 6	≤ 75 mm 7



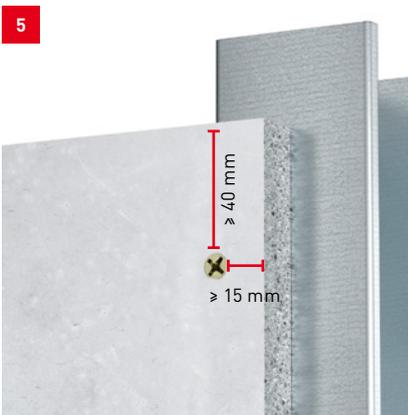
Fixing in substructure single-layer constructions



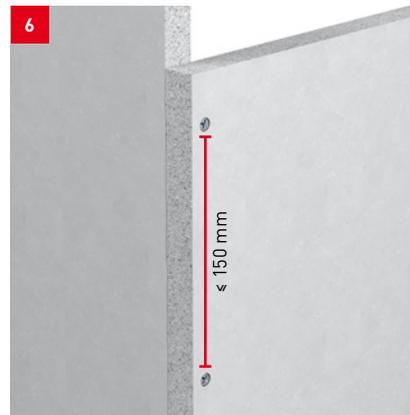
Fastening 2nd layer in 1st layer
Two-layer constructions with screws



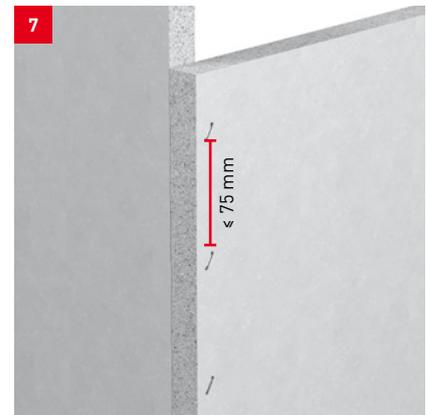
Fastening 2nd layer in 1st layer
Two-layer constructions with staples



Edge distances
Panel edge (horizontal): ≥ 15 mm
Panel edge (vertical): ≥ 40 mm



Fastener spacing
Screws



Fastener spacing
Staples

Recommended fasteners

	Board thickness						
	15 mm	20 mm	25 mm	30 mm	40 mm	50 mm	60 mm
panel in panel¹⁾ (boards on top of each other)	staples: 23-27 × 10 × 1.5 mm	staples: 33-37 × 10 × 1.5 mm	staples: 43-47 × 10 × 1.5 mm	staples: 55-58 × 10 × 1.5 mm	n.a.	n.a.	n.a.
panel in panel (boards on top of each other)	screws: 3.5 × 25 mm	screws: 3.5 × 35 mm	screws: 3.5 × 45 mm	Aestuver™ screws 4.0 × 55 mm	Aestuver™ screws 4.5 × 70 mm	Aestuver™ screws 4.5 × 80 mm	Aestuver™ screws 5.0 × 120 mm
Note: Screw length > Use screws with use free dimension ⁴⁾	Powerpanel H ₂ O-screws 3.9 × 35 mm	Powerpanel H ₂ O-screws 3.9 × 35 mm	Powerpanel H ₂ O-screws 3.9 × 50 mm				
	HECO-FIX-plus Countersunk head with milling ribs 4.0 × 35 mm	HECO-FIX-plus Countersunk head with milling ribs 4.0 × 35 mm	HECO-FIX-plus Countersunk head with milling ribs 4.0 × 45 mm	for further screws see s. ³⁾			
panel in panel¹⁾ (Connection across corner)	staples: ≥ 50 × 10 × 1.5 mm	staples: ≥ 55 × 10 × 1.5 mm	staples: ≥ 62 × 10 × 1.5 mm	staples: ≥ 68 × 10 × 1.5 mm	staples: ≥ 80 × 12 × 2.0 mm	n.a.	n.a.
panel in panel (Connection across corner)⁵⁾	HECO-FIX-plus Universal screws, Countersunk head with milling ribs s. 3.5 × 35 mm	Aestuver™ screws 4.0 × 55 mm	Aestuver™ screws 4.0 × 55 mm	Aestuver™ screws 4.5 × 70 mm	Aestuver™ screws 4.5 × 80 mm	Aestuver™ screws 5.0 × 120 mm	Aestuver™ screws 5.0 × 120 mm
CW Profil	Powerpanel H ₂ O-screws 3.9 × 35 mm	Powerpanel H ₂ O-screws 3.9 × 35 mm	Powerpanel H ₂ O-screws 3.9 × 50 mm	Powerpanel H ₂ O-screws 3.9 × 50 mm	Aestuver™ Drywall screw 4.2 × 75 mm	Aestuver™ Drywall screw 4.2 × 75 mm	Aestuver™ Drywall screw 4.2 × 75 mm
UA Profil	Powerpanel H ₂ O-Screws with DT 3.9 × 40 mm	Powerpanel H ₂ O-Screws with DT 3.9 × 40 mm	Powerpanel H ₂ O-Screws with DT 3.9 × 40 mm	Würth ZEBRA Flügel-piasta 5.5 × 55 mm	Würth ZEBRA Flügel-piasta 5.5 × 65 mm	Würth ZEBRA Flügel-piasta 5.5 × 90 mm	Würth ZEBRA Flügel-piasta 5.5 × 90 mm
	Würth ZEBRA Flügel-pias 5.5 × 38 mm	Würth ZEBRA Flügel-pias 5.5 × 45 mm	Würth ZEBRA Flügel-pias 5.5 × 45 mm				
			Würth ZEBRA Flügel-piasta 5.5 × 55 mm				

	Board thickness						
	15 mm	20 mm	25 mm	30 mm	40 mm	50 mm	60 mm
Trapezoidal sheet metal up to 0.75 mm	Powerpanel H ₂ O-screws 3.9×40 mm	Powerpanel H ₂ O-screws 3.9×50 mm	Powerpanel H ₂ O-screws 3.9×50 mm	Powerpanel H ₂ O-screws 3.9×50 mm	Aestuvert TM Drywall screw 4.2×75 mm	Aestuvert TM Drywall screw 4.2×75 mm	Aestuvert TM Drywall screw 4.2×75 mm
	Powerpanel H ₂ O-Screws with DT 3.9×40 mm (up to 1.5 mm sheet thickness)	Powerpanel H ₂ O-Screws with DT 3.9×40 mm (up to 1.5 mm sheet thickness)	Powerpanel H ₂ O-Screws with DT 3.9×40 mm (up to 1.5 mm sheet thickness)				
Hollow box profile up to 4.5 mm	Würth ZEBRA Flügel-pias 5.5×45 mm	Würth ZEBRA Flügel-pias 5.5×50 mm	Würth ZEBRA Flügel-piasta 5.5×55 mm	Würth ZEBRA Flügel-piasta 5.5×65 mm	Würth ZEBRA Flügel-piasta 5.5×90 mm	Würth ZEBRA Flügel-piasta 5.5×90 mm	Würth ZEBRA Flügel-piasta 5.5×90 mm
	Würth ZEBRA Flügel-piasta 5.5×55 mm	Würth ZEBRA Flügel-piasta 5.5×55 mm	Guntram End GmbH: E-X Bohr Flt 5.5×60 mm	Guntram End GmbH: E-X Bohr Flt 5.5×60 mm	Guntram End GmbH: E-X Bohr Flt 5.5×60 mm	Guntram End GmbH: E-X Bohr Flt 5.5×80 mm	Guntram End GmbH: E-X Bohr Flt 5.5×80 mm
	Guntram End GmbH: E-X Bohr Flt 5.5×60 mm	Guntram End GmbH: E-X Bohr Flt 5.5×60 mm					
Wooden substructure	Powerpanel H ₂ O-screws 3.9×35 mm	Powerpanel H ₂ O-screws 3.9×50 mm	Powerpanel H ₂ O-screws 3.9×50 mm	Aestuvert TM screws 4.5×80 mm	Aestuvert TM screws 4.5×80 mm	upon request	upon request
	staples: ≥50×10×1.5 mm	staples: ≥55×10×1.5 mm	staples: ≥63×10×1.5 mm	staples: ≥75×10×1.5 mm	upon request	n.a.	n.a.
Concrete²⁾	Hilti Screw anchor HUS 6×60 resp. HUS-H 6×60	Hilti Screw anchor HUS 6×80 resp. HUS-H 6×80	Hilti Screw anchor HUS 6×80 resp. HUS-H 6×80	Hilti Screw anchor HUS 6×80 resp. HUS-H 6×80	Hilti Screw anchor HUS 6×100 resp. HUS-H 6×100	Hilti Screw anchor HUS 6×100 resp. HUS-H 6×100	Hilti Screw anchor US 6×120 resp. HUS-H 6×120
	Heco mmS-P 7.5×50	Heco mmS-S 7.5×70	Heco mmS-S 7.5×70	Heco mmS-S 7.5×70	Heco mmS-S 7.5×85/20 (stainless steel)	Heco mmS-S 7.5×95/30 (stainless steel)	Heco mmS-S 7.5×115/50 (stainless steel)
	Fischer Nail anchor (stainless steel) FNA II 6×30/30	Fischer Nail anchor (stainless steel) FNA II 6×30/30	Fischer Nail anchor (stainless steel) FNA II 6×30/30	Fischer Nail anchor (stainless steel) FNA II 6×30/30	Fischer Nail anchor (stainless steel) FNA II 6×30/50	Fischer Nail anchor (stainless steel) FNA II 6×30/50	Fischer Nail anchor (stainless steel) FNA II 6×30/75

Notes:

The specified clamp and screw dimensions are minimum dimensions; if other dimensions are specified in the technical approvals of the associated constructions, these are decisive!

The further specifications of the corresponding technical approvals for the fasteners as well as the corrosion protection requirements for the fasteners must be checked and observed!

DT = Drill tip

When connecting the panels to each other with staples, use resinated steel wire staples without expansion effect.

¹⁾ Fastening with staples only permissible for wall mounting, not for ceiling/roof slope mounting! Fire protection requirements must be checked!

²⁾ Further requirements (e.g. technical approvals) must be checked!

³⁾ Screws for fastening Aestuvert[®] cover strips: Board thickness = 25 mm on E90 AestuvertTM cable duct, Board thickness = 60 mm: "Reca" chipboard screw countersunk head Z2 A2 4.5×60/36;

⁴⁾ Clearance prevents a gap between the boards when screwing second layer to first layer. The smaller the threaded portion in the second layer, the better the gap is avoided. Ideally, only the screw head clamps the second layer.

n. a. = No information or no suitable fastening known. In special cases, clarification by our application technology department.

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