PROMATHERM®-VE 150
Composite Element 150°C

Material Description

PROMATHERM® composite element is a large-sized building element with extraordinarily good insulating properties.

It consists of two PROMATECT®-H top boards which are bonded with a special hard foam core.

The elements are used as prefabricated parts for wall and ceiling elements, partition walls or flue gas ducts in dryers, industrial furnaces and plant construction.

With PROMATECT®-H as outer top boards, these elements have a smooth, hard, scratch-resistant surface, which is unaffected by humidity and is corrosion-proof. The hard foam core is quality-controlled according to DIN 18164 and guarantees efficiency for technically demanding applications.

Advantages and Properties

- large-sized, self-supporting
- good insulating effect, high permanent temperature resistance
- minimum thermal bridges
- corrosion and rot-resistant
- good chemical resistance
- vibration-proof
- secure and variable fixings and connections
- uncomplicated breakthroughs producible
- noise protection
- long service life
- energy-saving
- dimensionally stable, low thermal expansion
- variable surface coatings are possible
- cost-reducing thanks to ready-to-assemble systems and easy processing

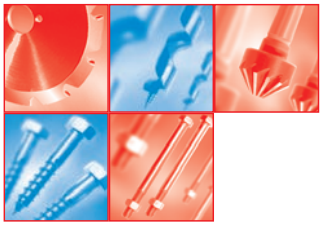
Technical Data

Product Name	**PROMATHERM®-VE 150**	
Colour	grey	
Classification temperature	150°C	
	PROMATECT®-H Insulating Board	**Hard Foam Core**
Building material class according to DIN 4102	A1, non-combustible	B2, flammable
Bulk density ρ	870 kg/m³	40 kg/m³
Compressive strength	9.3 N/mm²	0.3 N/mm²
Thermal conductivity λ	0.17 W/m K	0.025 W/m K
Load in the ceiling section	There is no Building Supervisory Office permit for traffic loads	

Areas of Application

- Drying plants of all kinds for ceramic, wood, varnish, textiles, paper, leather, etc.
- Apparatus and plants, e.g. shrink-foil tunnel, steaming plants, tunnel furnaces etc.
- Flue gas ducts, ventilation and air-conditioning systems
- Baking plants
- Wet rooms

Assembly of PROMATHERM® composite elements to a steel frame construction



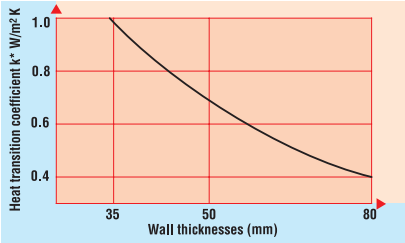
Working and Processing

Composite elements made of PROMATECT® can be easily processed (sawing, drilling, milling, etc.)

Cutting to Size

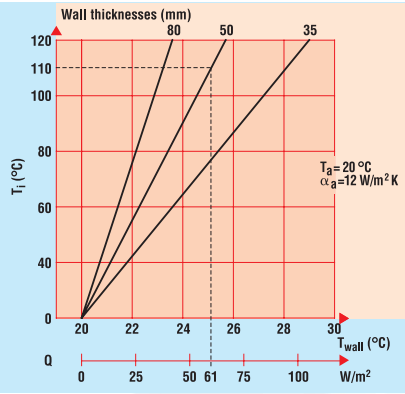
When cutting to size, the maximum workplace concentration values for dust generation must be observed. In general dust suction is recommended.

Heat transition coefficient k



* For calculating the value of k, the transfer resistance was, in accordance with DIN 4108, assumed to be with 0.163 m² K/W. $\frac{1}{\alpha_i} + \frac{1}{\alpha_a}$

Heat transfer diagram



Example:

Heating chamber temperature T_i = 110°C
Selected wall thickness s = 50 mm

Thus is follows:
External wall temperature T_{Wall} = 25°C
Heat loss Q = 61 W/m²

Fixing and Connecting Systems

Apart from the selection of the insulating material itself, the most important factor for an economical construction is the choice of connecting and fixing systems.

On pages 32/33 you will find the fixing and connecting suggestions which can also be applied to PROMATHERM® composite elements VE 250 and PROMATHERM® composite elements VE 400.

→ 500°C

Delivery Sizes		
Dimensions and Weights		
Top board thickness	6 mm	
Standard dimensions	2500 x 1250 mm	
Element thickness (mm)	**Core thickness (mm)**	**Weight (kg/m²)**
35	22	11.8
50	37	12.3
80	67	13.4

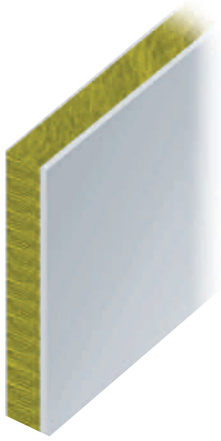
Tolerances

Dimensional tolerances of standard boards:
Lengths and widths: ± 5 mm
Thicknesses 35-80 mm: ± 3 mm

Cut Sections

Cut sections are produced at the request of the customer and according to drawings.

PROMATHERM®-VE 250
Composite Element 250°C



Material Description

PROMATHERM® composite element is a large-sized building element with extraordinarily good insulating properties. It consists of two PROMATECT®-H top boards, which are bonded with a temperature resistant mineral wool core. The elements are used as prefabricated parts for wall and ceiling elements, partition walls or flue gas ducts in dryers, industrial furnaces and plant construction. In terms of working hygiene, these materials are harmless and are not classified.

Advantages and Properties

- harmless in terms of working hygiene
- large-sized, self-supporting
- good insulating effect, high permanent temperature resistance
- minimum thermal bridges
- corrosion and rot-resistant
- good chemical resistance
- vibration-proof
- secure and variable fixings and connections
- uncomplicated breakthroughs producible
- diffusion open, no condensates
- fire protection, noise protection
- long service life
- energy-saving
- dimensionally stable, low thermal expansion
- variable surface coatings are possible
- cost-reducing thanks to ready-to-assemble systems and easy processing

Technical Data

Product Name	**PROMATHERM®-VE 250**	
Colour	grey	
Classification temperature	250°C	
	PROMATECT®-H Insulating Board	Mineral Wool Core PROMALAN®-CR
Building material class according to DIN 4102	A1, non-combustible	A1, non-combustible
Bulk density ρ	870 kg/m³	150 kg/m³
Compressive strength	9.3 N/mm²	0.115 N/mm²
Thermal conductivity λ	0.17 W/m K	0.05 W/m K
Insulating core	Insulating cores with reduced bulk density are available at the request of the customer	
Load in the ceiling section	There is no Building Supervisory Office permit for traffic loads	

Working and Processing

Composite elements made of PROMATECT® can be easily processed (sawing, drilling, milling, etc.)

Cutting to Size
When cutting to size, the maximum workplace concentration values for dust generation must be observed. In general dust suction is recommended.

Fixing and Connecting Systems

For fixing and connecting systems, please refer to page 32/33.

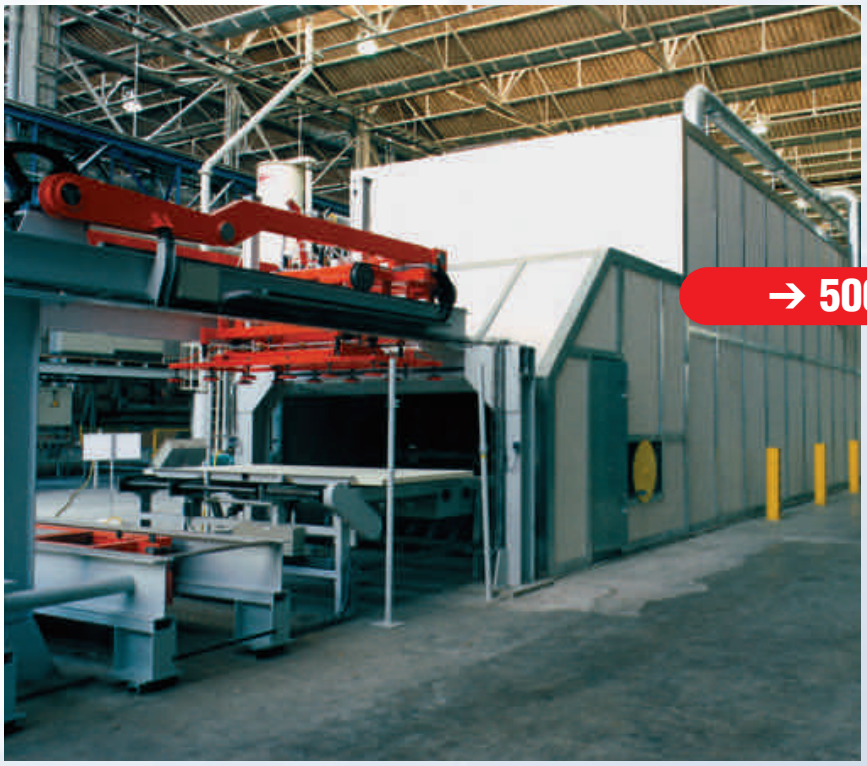
Areas of Application

- Drying plants of all kinds for ceramic, wood, varnish, textiles, paper, leather, etc.
- Apparatus and plants, e.g. shrink-foil tunnels, steaming plants, tunnel furnaces etc.
- Flue gas ducts, ventilation and air-conditioning systems
- Baking plants
- Wet rooms

Selection Criteria

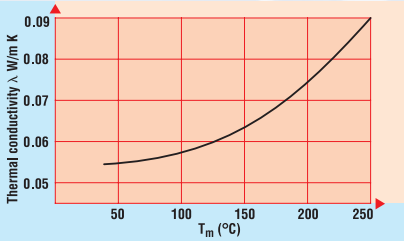
Selection criteria for PROMATHERM® composite elements:

- Temperature range
- Thermal insulation property, low heat losses
- Lightweight, low heat storage
- Self-supporting, large-sized elements, ready-to-assemble construction
- Fire and noise protection

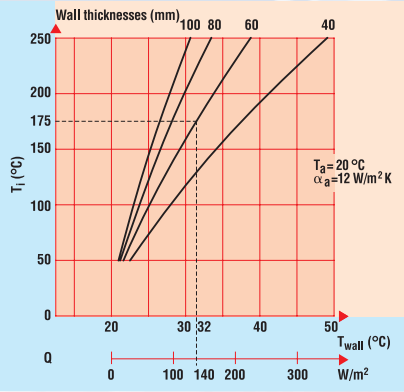


PROMATHERM® composite element VE 250 as outer lining of a continuous tunnel dryer

Thermal conductivity curve for PROMATHERM®-VE 250 (60 mm thick)



Heat transfer diagram



Delivery Sizes		
Dimensions and Weights		
Top board thickness	6 mm	
Standard dimensions	2500 x 1250 mm	
Element thickness (mm)	**Core thickness (mm)**	**Weight (kg/m²)**
40	28	15.0
60	48	18.0
80	68	21.0
100	88	24.0

Tolerances
Dimensional tolerances of standard boards:
Lengths and widths: ± 5 mm
Thicknesses 40-100 mm: ± 3 mm

Example:
Heating chamber temperature T_i = 175°C
Selected wall thickness s = 60 mm

Thus it follows:
External wall temperature T_{wall} = 32°C
Heat loss Q = 140 W/m²

Cut Sections
Cut sections are produced at the request of the customer and according to drawings.

PROMATHERM®-VE 400
Composite Element 400°C

PROMATHERM®-VE 400 Composite element with groove and tongue

Material Description

PROMATHERM® composite element is a large-sized building element with extraordinarily good insulating properties.

It consists of two PROMATECT®-H top boards, which are bonded with a temperature resistant mineral wool core.

The elements are used as prefabricated parts for wall and ceiling elements, partition walls or flue gas ducts in dryers, industrial furnaces and plant construction. In terms of working hygiene, these materials are harmless and not subject to any classification.

Advantages and Properties

- harmless in terms of working hygiene
- large-sized, self-supporting
- good insulating effect, high permanent temperature resistance
- minimum thermal bridges
- corrosion and rot-resistant
- good chemical resistance
- vibration-proof
- secure and variable fixings and connections
- uncomplicated breakthroughs producible
- diffusion open, no condensates
- fire protection, noise protection
- long service life
- energy-saving
- dimensionally stable, low thermal expansion
- variable surface coatings are possible
- cost-reducing thanks to ready-to-assemble systems and easy processing

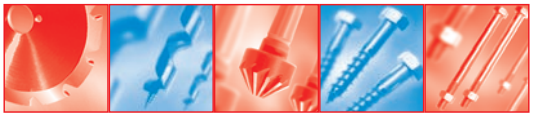
Roller kiln with PROMATHERM®-composite element VE 400 lining

Technical Data

Product Name	**PROMATHERM®-VE 400**	
Colour	grey	
Classification temperature	400°C	
	PROMATECT®-H Insulating Board	Mineral Wool Core PROMALAN®-CR
Building material class according to DIN 4102	A1, non-combustible	A1, non-combustible
Bulk density ρ	870 kg/m³	150 kg/m³
Compressive strength	9.3 N/mm²	0.115 N/mm²
Thermal conductivity λ	0.17 W/m K	0.05 W/m K
Insulating core	Insulating cores with reduced density are possible at the request of the customer	
Load in the ceiling section	There is no Building Supervisory Office permit for traffic loads	

Working and Processing

Composite elements made of PROMATECT® can be easily processed (sawing, drilling, milling, etc.)



Cutting to Size
When cutting to size, the maximum workplace concentration values for dust generation must be observed. In general dust suction is recommended.

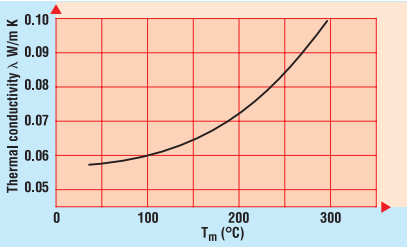
Surface Treatment
The physical and technological construction properties of PROMATECT®-H top boards are suitable for the application of decorative surfaces. PROMATHERM® composite elements are hygroscopic and vapour permeable. Water and vapour are absorbed and emitted without impairing the strength values. In plants with high moisture content, attention must be paid to the changed values of water vapour transmission resistance by using paints. Plants sensitive to dust, e.g. varnish plants, must be made dust-free in critical areas, e.g. breakthroughs and cross joints, by treating the cut surfaces.

→ 500°C

Fixing and Connecting Systems

For fixing and connecting systems, please refer to page 32/33.

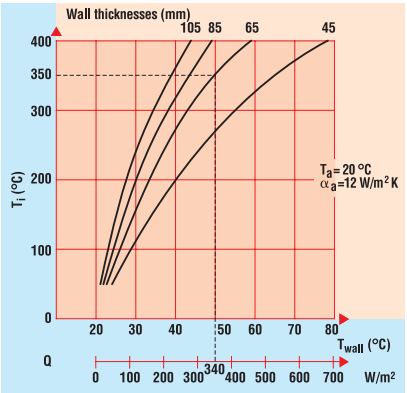
Thermal conductivity curve for PROMATHERM®-VE 400 (65 mm thick)



Areas of Application

- Drying plants of all kinds for ceramic, wood, varnish, textiles, paper, leather, etc.
- Apparatus and plant, e.g. shrink-foil tunnel, steaming plants, tunnel furnaces etc.
- Flue gas ducts, ventilation and air-conditioning systems
- Baking plants
- Wet rooms

Heat transfer diagram



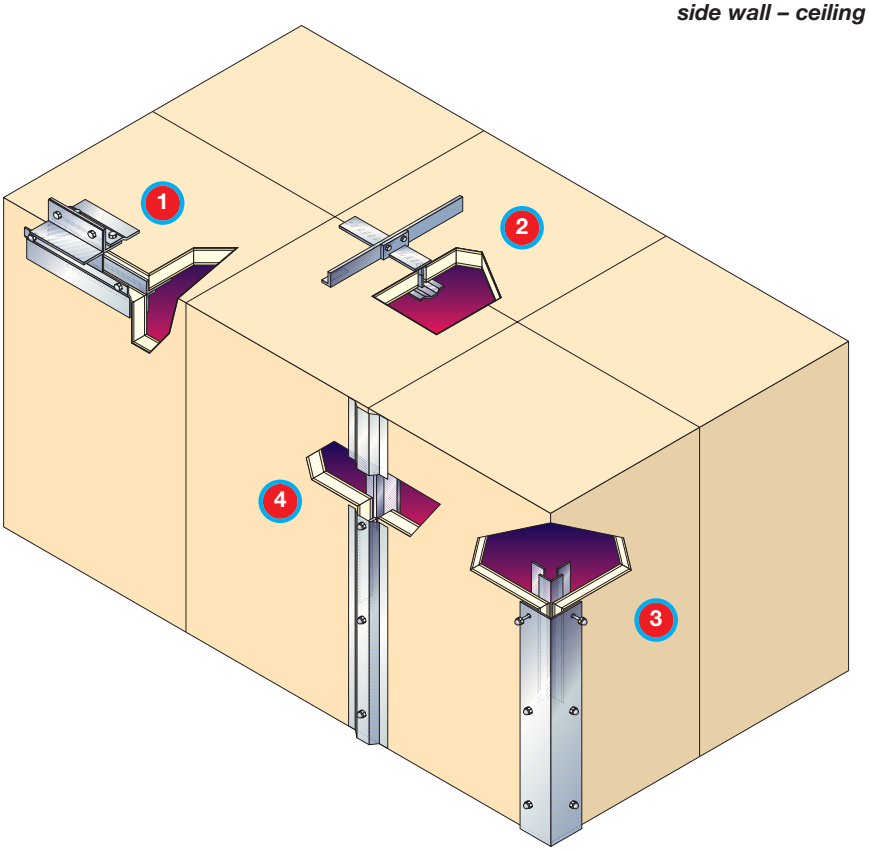
Example:
Heating chamber temperature T_i = 350°C
Selected wall thickness s = 65 mm

Thus it follows:
External wall temperature T_{wall} = 50°C
Heat loss Q = 340 W/m²

Delivery Sizes		
Dimensions and Weights		
Top board thickness	8 mm	
Standard dimensions	3000 x 1250 mm, 2500 x 1250 mm	
Element thickness (mm)	**Core thickness (mm)**	**Weight (kg/m²)**
45	28	19.0
65	48	22.0
85	68	25.0
105	88	28.0

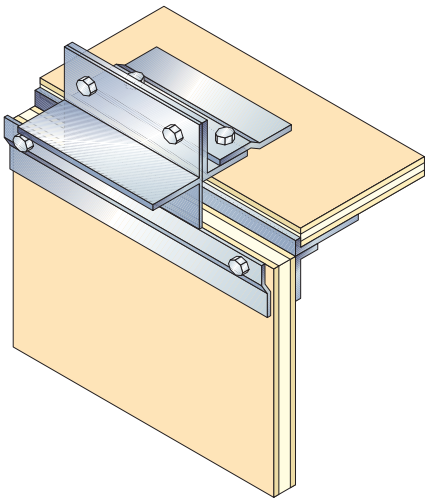
Tolerances
Dimensional tolerances of standard boards:
Lengths and widths: ± 5 mm
Thicknesses 45-105 mm: ± 3 mm

Cut Sections
Cut sections can be produced at the request of the customer and according to drawings.



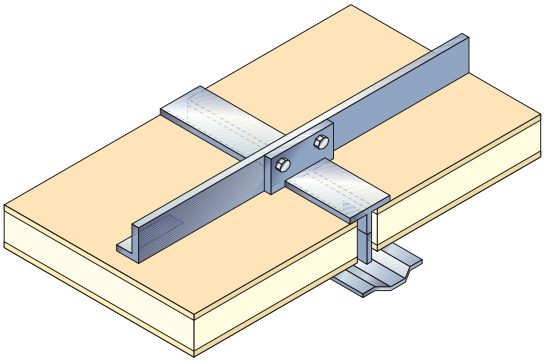
1

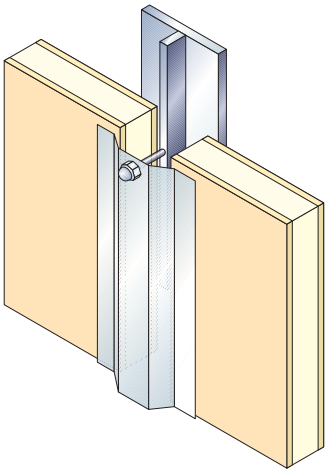
Corner connection side wall – ceiling



2

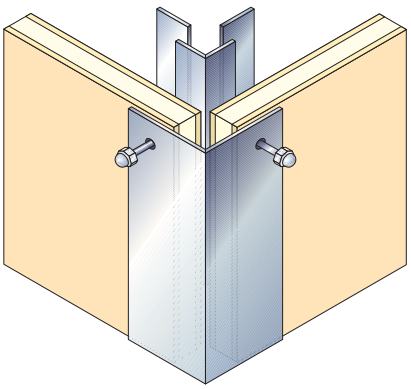
Board joint in the ceiling





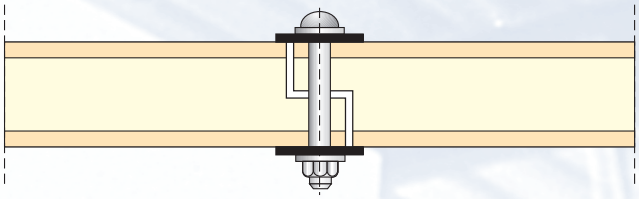
4

Board joint – side wall



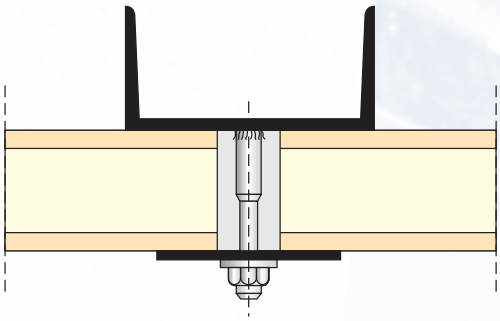
3

Corner connection side wall – front wall

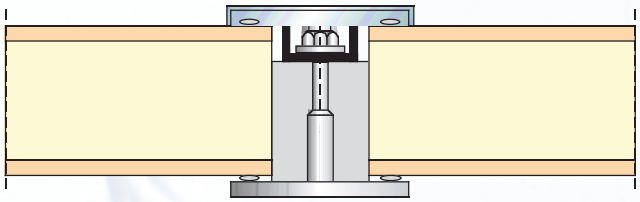


Board connection with stepped joint

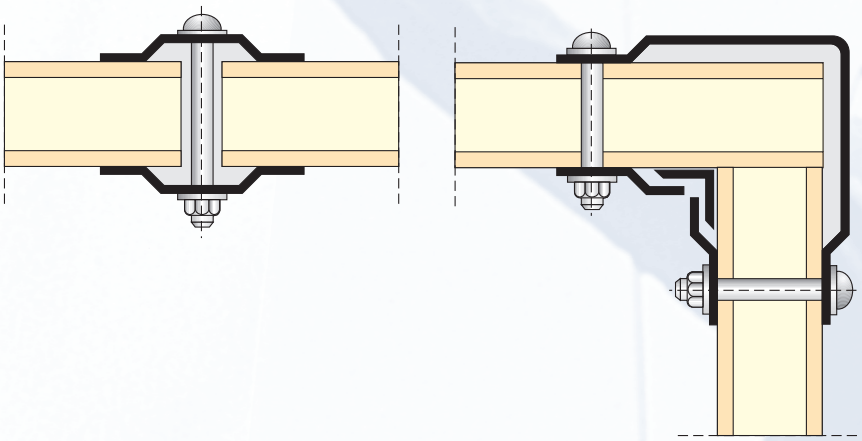
→ 500°C



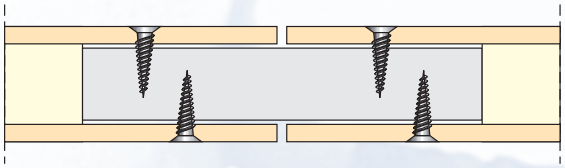
Board connection jammed to steel frame construction



Board connection with hidden fixing



Corner connection side wall – reverse wall



Board connection using PROMATECT®

MGM

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