



A Tata Steel Enterprise

MONTANATHERM®

Sandwich elements with shells in steel and aluminium



SWISS MADE⁺



CONTENTS

FAST. ECONOMICAL. MONTANATHERM®.

SWISS MADE

Montana products are Swiss products. Manufactured in our factory in Villmergen (CH), they meet your and our high requirements for the best quality.

EXCELLENT CONSTRUCTION PROPERTIES

The outstanding qualities of MONTANATHERM® sandwich elements – low weight combined with high rigidity – enable substantial bearing widths and easy fitting.

The corrosion-protected and weatherproof outer shells absorb the tensile and compressive forces that occur during load transfer.

ECONOMIC EFFICIENCY

MONTANATHERM® is the predestined construction system for industrial and commercial buildings where rapid building progress, economic efficiency and high insulation value are required.

INDIVIDUAL ADAPTABLE DESIGN

Through the possibility of attached exterior claddings, the individual ideas of planners and architects can be implemented without having to do without the well-known and proven benefits of the classic MONTANATHERM® sandwich elements.

The MONTANATHERM® Carrier elements thus make a new method of construction possible by combining the well-known strengths of the MONTANATHERM® wall elements with the advantages of a rear-ventilated façade.

CREATIVE DESIGN POSSIBILITIES

MONTACOLOR® colours, different surface textures, decorative pilaster strips and the elegant wall element with hidden fastening offer diverse creative design possibilities.

MONTANATHERM® is compatible with the SP44 trapezoidal profile, which presents planners and architects additional possibilities for new buildings and extensions.

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MONTANATHERM® SANDWICHELEMENTS

Montana Building Systems Ltd. has been producing sandwich elements for roofs, facades and interior walls for over two decades on the first continuous production plant in Switzerland. CFC and HCFC-free foaming agents are used on the 270 m long, highly modern plant. This enables Montana Building Systems Ltd. to offer environmentally friendly sandwich elements for roofs and walls. Continuous investments in modern plant and production technology ensure that the end products meet the high expectations of our customers for a sustainable and high-quality product range.



PACKAGING AND TRANSPORT

Preparation for transport takes place by means of professional stacking. On request, the elements will be packed in such a way that they can be taken from the stack on the building site using vacuum installation devices (Octopus packaging). The MONTANATHERM® sandwich elements are wrapped in a special stretch film for protection against weather, wind and wetness.

The individual elements are always delivered with a protective film that must be removed immediately after fitting. Please be sure to note the instructions on the package labels. Well-trained contract drivers take care of delivery and transport to the building site.

ECONOMIC EFFICIENCY AND FUNCTIONALITY

The outstanding features of MONTANATHERM® sandwich elements, which are ready to fit, include their lightweight property combined with high rigidity. This enables substantial bearing widths and easy fitting. The outer shells absorb the tensile and compressive forces that occur and are resistant to outside influences such as weather, temperature and mechanical loading. The polyisocyanurate (PIR) high-resistance foam with a bulk density of approx. 40 kg/m³ fixes the outer shells at the desired intervals and absorbs the shearing and transverse forces during stress on the element.

MONTANATHERM® sandwich elements also achieve outstanding profitability in the installation process thanks to their large surface areas.

AESTHETICS IN STEEL AND ALUMINIUM

All MONTANATHERM® sandwich elements are produced using steel or aluminium shells from the MONTACOLOR® colour collection. As a standard the outer shells are provided with a 25 µm thick polyester coil coating, or in the case of higher aesthetic requirements or for corrosion protection the outer shells are provided with a 65 µm thick coating of Colorcoat PRISMA®. The different surface textures and the optically very elegant wall element with hidden fasteners provide architects, planners and building owners with diverse creative design possibilities.

NEW: individually designable pilaster strip profiles offer enormous scope for your creativity! (see page 7)

AREAS OF APPLICATION

MONTANATHERM® sandwich elements are suitable for the most varied construction projects in which fast installation and excellent heat insulation properties are important. The elements can be used as exterior walls, roof or partition walls.

ADJUSTMENT BASE

The adjustment base is delivered completely installed, whereas two MONTANATHERM® roof elements are always screwed together. The dimensions/clearance dimensions can be selected. The installation on site can be done smoothly and saves time because no adjustments are required.


LATERAL JOINT OVERLAPPING

The Montana Building Systems Ltd. can deliver the elements on site with foam-free overlapping (see page 9), so that a clean and reliable lateral joint can be constructed.

SOUND INSULATION

Despite the low weight of the MONTANATHERM® sandwich elements, they produce an adequate airborne sound insulation value for most cases. This is due to the combination of the two roof shells through a core with low dynamic flexural strength. An R_w noise insulation value of approx. 25 dB is achieved without any additional structural measures and irrespective of the element thicknesses of 80–180 mm.

FIRE CLASSIFICATION

All MONTANATHERM® sandwich elements are supplied with fire classification category RF2 (BKZ 5.3)  for Switzerland. The elements also satisfy the European fire class B-s2-d0 according to EN 13501-1.


For even higher fire protection requirements, the hidden fastened wall elements with a core thickness of 140 mm and more, as well as roof elements from 120 mm can also be supplied with an optional fire resistance as EI30 or REI30 elements. Of course, official VKF certification is also available for this application. Please note the special EI30/REI30 marking on the following pages.

QUALITY ASSURANCE

The manufacturing is subject to regular and certified factory quality assurance and production control. Compliance with the tolerances set under the quality and test provisions of the EPAQ Quality Regulations is also monitored. Continuous internal plant production controls during and after the manufacturing process guarantee that the materials, galvanising, sheet thickness, foam properties and dimensional accuracy of the quality-protected MONTANATHERM® sandwich elements meet the specified quality requirements.

The MONTANATHERM® sandwich elements are designated according to EN 14509 with the CE mark. Upon request the essential product features will be documented with a Declaration of Performance in accordance with Construction Products Regulations.

THERMAL INSULATION

The outstanding thermal insulation properties of the PIR core layer are verified and confirmed by continuous measurements and regular external monitoring. The basis for the transparent U-value calculations required for energy verification (see following pages) is an official certified Lambda value  of the thermal conductivity.

MONTARECYCLE

We are taking back the wooden pallets and slings that were needed to deliver MONTANATHERM® sandwich panels to you. Completely free of charge for you. Just let us know when the material is ready for collection and we pick it up. We check the material, prepare it and use it again for the next transport. That is recycling in action.

HAIL PROTECTION

Optimum protection even in bad weather conditions! Our MONTANATHERM® facade elements also resist hail and verify this with the VKF Hail Protection Certificate  of the HW 3 class.

MONTANA QUALITY


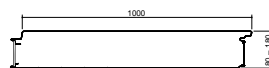









Montana Building Systems Ltd. fulfils the most varied customer wishes: from consultation and customer care to excellent production and prompt delivery. Customer satisfaction is our quality standard! Talk to us if you are looking for an economically and qualitatively perfect solution for your construction project!



MONTANATHERM®

SANDWICH ELEMENTS WITH SHELLS IN STEEL AND ALUMINIUM

Wall elements with CFC and HCFC-free PIR high-resistance foam with hidden fasteners

TYPE	PROFILE		TECHNICAL DATA						EI 30	SURFACES		SHEET THICKNESS		
			M kg/m ²	d mm	L max m	U ₁ W/(m ² K)	U ₂ W/(m ² K)	S Items/pack		LL	ML	E mm	I mm	
● WALL ELEMENTS WITH HIDDEN FASTENING  	● MTW V ML 80/1000		STEEL kg/m ² 13.34	●	80	17	0.25	0.28	13		●	●	0.63	0.45
			ALUMINIUM kg/m ² On request and after prior technical clarification; minimum quantities to be observed											
	● MTW V ML 100/1000		STEEL kg/m ² 14.15	●	100	17	0.20	0.22	11		●	●	0.63	0.45
			ALUMINIUM kg/m ² On request and after prior technical clarification; minimum quantities to be observed	Minimum quantity 1000 m ²										
	● MTW V ML 120/1000		STEEL kg/m ² 14.96	●	120	17	0.17	0.18	9		●	●	0.63	0.45
			ALUMINIUM kg/m ² On request and after prior technical clarification; minimum quantities to be observed											
	● MTW V ML 140/1000	 <div>EI 30</div>	STEEL kg/m ² 15.75	●	140	17	0.15	0.15	8	●	●	●	0.63	0.45
		ALUMINIUM kg/m ² On request and after prior technical clarification; minimum quantities to be observed												
	● MTW V ML 160/1000	 <div>EI 30</div>	STEEL kg/m ² 16.56	●	160	17	0.13	0.13	7	●	●	●	0.63	0.45
		ALUMINIUM kg/m ² On request and after prior technical clarification; minimum quantities to be observed												
	● MTW V ML 180/1000	 <div>EI 30</div>	STEEL kg/m ² 17.37	●	180	17	0.11	0.12	6	●	●	●	0.63	0.45
		ALUMINIUM kg/m ² On request and after prior technical clarification; minimum quantities to be observed												
● The sandwich elements achieve a noise insulation value Rw of approx. 25 dB, as well as an official and <u>certified according to SIA 279 thermal conductivity of 0.021 W/(mK)</u>  .														
● SURFACES														
LL = Lining														
ML = Microprofilation														
														
														

SERVICE-ELEMENTS

 CONSTRUCTION RECOMMENDATION 	 TENDERING TEXTES (CH) 	 SAMPLES 	 BIM 
 STATIC TABLES 	 CAD 	 STOCK MATERIAL LIST 	 SUSTAINABILITY 

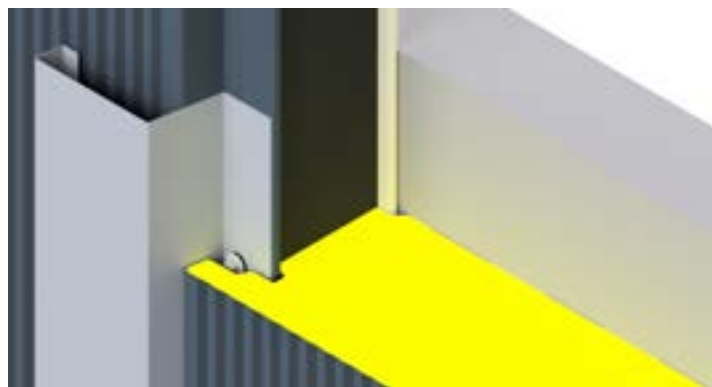
SETTING ACCENTS

Pilaster strips as decorative façade elements subdivide wall areas and accentuate lines. They enable not only an aesthetic design, but also a technically ideal solution to make the joint area as well as visible panel connections disappear in an elegant way. Our pilaster strip profiles are mounted simply and directly in the sandwich joints. Creative highlights can thus be set in the façade design in an inexpensive way.

There are four predefined standard shapes for the pilaster strip profiles. Of course, you can also design your own profile and have it manufactured by our specialists.

TECHNICAL DETAILS

- Material: Steel in 0.70 mm (polyester 25 µm) or 0.75 mm (Colorcoat PRISMA®)
- Recommended length max. 4'000 mm
- Horizontal or vertical installation possible



Pilaster strip
Construction with pilaster strip art. 410

STANDARD SHAPES



Pilaster strip 410
e.g. in Colorcoat PRISMA® ZEUS



Pilaster strip 411
e.g. in Colorcoat PRISMA® KRONOS



Pilaster strip 412
e.g. in Colorcoat PRISMA® SEREN GOLD



Pilaster strip 413
e.g. in Colorcoat PRISMA® SIRIUS II

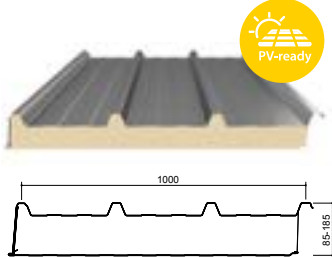
MONTANATHERM®

SANDWICH ELEMENTS WITH SHELLS IN STEEL AND ALUMINIUM

Roof elements with CFC and HCFC-free PIR high-resistance foam

TYPE

ROOF ELEMENTS



PROFILE

MTD TL 85/1000



MTD TL 105/1000



MTD TL 125/1000



MTD TL 145/1000



MTD TL 165/1000



REI 30

MTD TL 185/1000



REI 30

The sandwich elements achieve a noise insulation value R_w of approx. 25 dB, as well as an official and certified according to SIA 279 thermal conductivity of 0.021 W/(mK).

SURFACE

TL = Trapezoidal profiling



TECHNICAL DATA

STEEL
kg/m²

ALUMINIUM
kg/m²

M kg/m²

d mm

L max m

U_1 W/(m²K)

U_2 W/(m²K)

S Items/pack

SURFACES

LL

SHEET THICKNESS

E mm

I mm

SERVICE-ELEMENTS

CONSTRUCTION RECOMMENDATION

STATIC TABLES

TENDERING TEXTES (CH)

CAD

SAMPLES






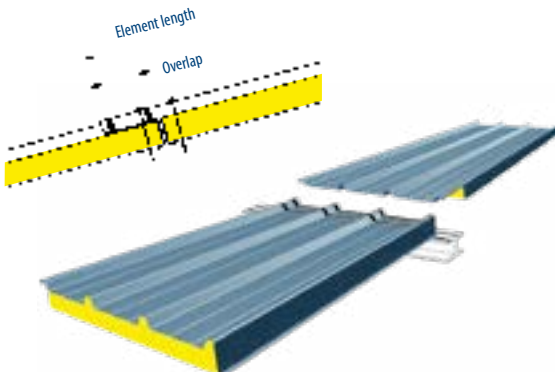

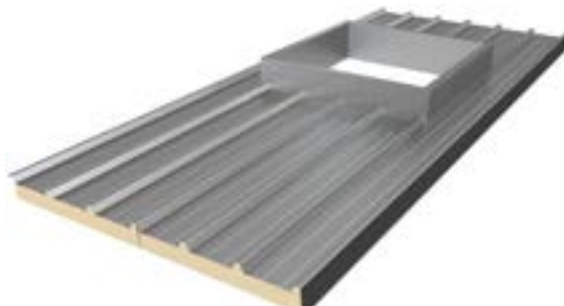
STOCK MATERIAL LIST

BIM

SUSTAINABILITY

TECHNOLOGY

TECHNICAL INFORMATION

DESCRIPTION		FINISH		OVERLAP													
● A ELEMENT		●	Foam core incision	●	left right												
● B ELEMENT 		●		●													
● C ELEMENT 		●		●													
● OVERLAP, MINIMUM ROOF PITCH AND TOLERANCES		●	<p>Recommended minimum roof pitch</p> <p>Roof without lateral joint and recess: 6% / 3.4°</p> <p>Roof with lateral joint or recess: 10% / 5.7°</p> <p>Support widths: min. 40 mm</p> <p>Removal of foam core: min. 50 mm to max. 300 mm, with min. 2500 mm element length</p> <p>Sealing strips are to be provided on the substructure and between the elements for the overlaps.</p> <p>General Tolerances</p> <table><tr><td>Length ≤ 6 m:</td><td>± 5 mm</td><td>Thickness ≤ 100 mm: ± 2 mm</td></tr><tr><td>Length ≤ 10 m:</td><td>± 9 mm</td><td>Thickness > 100 mm: ± 2%</td></tr><tr><td>Length > 12 m:</td><td>± 10 mm</td><td>Transversal camber: Wall elements max. 8 mm</td></tr><tr><td>Width: ± 4 mm</td><td></td><td>Roof elements max. 10 mm</td></tr></table>			Length ≤ 6 m:	± 5 mm	Thickness ≤ 100 mm: ± 2 mm	Length ≤ 10 m:	± 9 mm	Thickness > 100 mm: ± 2%	Length > 12 m:	± 10 mm	Transversal camber: Wall elements max. 8 mm	Width: ± 4 mm		Roof elements max. 10 mm
Length ≤ 6 m:	± 5 mm	Thickness ≤ 100 mm: ± 2 mm															
Length ≤ 10 m:	± 9 mm	Thickness > 100 mm: ± 2%															
Length > 12 m:	± 10 mm	Transversal camber: Wall elements max. 8 mm															
Width: ± 4 mm		Roof elements max. 10 mm															
● ADJUSTMENT BASE 		●	<p>To avoid colour deviations, the same basic material is used for the special production of the curbing as for the manufacture of the sandwich elements (the field of liquid plastic is excluded). Taking account of the structural engineering conditions, the length of the clear dimension of the curb can vary between 1300 mm and 2800 mm. The maximum clearance width of the curb, on the other hand, is 1300 mm. The height of the curb is 350 mm. The side walls are 60 mm thick and insulated with mineral wool. To place your orders, use the form at www.montana-ag.ch > Services > Requests and orders.</p> <p>Advantages</p> <p>The curb is completely pre-fitted ex works. Special transport and storage devices guarantee problem-free delivery and handling on site (delivery of curbs only within Switzerland).</p> <p>Installation instructions</p> <p>Under the laws and regulations currently in force, appropriate fall protection devices must be fitted when carrying out roof works. Skylights (dome lights, light elements, etc.) must be guaranteed shatter-proof through suitable collective measures such as protective grids or mesh inserts.</p>														

ACCESSORIES

FOR WALL ELEMENTS

DESCRIPTION

● FITTING EQUIPMENT MONTATOOL®



● LOAD DISTRIBUTION BOARD



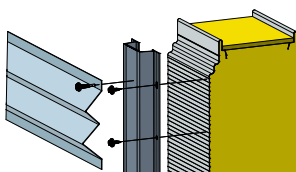
● SCAFFOLDING BRACKET



● COMBINATION LOAD DISTRIBUTION BOARD / SCAFFOLDING BRACKET



● MONTANATHERM® CARRIER



FINISH

- Equipment for the installation of MONTANATHERM® wall elements. Easy handling thanks to the telescopic tube and clamping mechanism. 2 fitting equipments including accessories packaged in a handy plastic box. Weight approx. 16 kg. Suitable for all MONTANATHERM® wall elements.






- Load distribution board, suitable for MONTANATHERM® wall elements with hidden fastening
 - for safe transfer of high bolt forces due to wind suction into the sandwich joint
 - Material stainless steel 1.4301
 - Thickness 1.5 mm
 - Dimension: 40 × 200 mm
 - Box of 50 pcs.

- Scaffolding brackets, suitable for MONTANATHERM® wall elements with hidden fastening
 - for simple and secure fastening of the scaffolding during the construction phase
 - Material stainless steel 1.4301
 - Thickness 1.5 mm
 - Dimension: 70 × 105 mm
 - Box of 50 pcs.

- Combination of load distribution board and scaffolding bracket, suitable for MONTANATHERM® wall elements with hidden fastening
 - One component for maximum safety
 - Material stainless steel 1.4301
 - Thickness 1.5 mm
 - Dimension: 200 × 105 mm
 - Box of 50 pcs.

The well-known strengths of MONTANATHERM® façade elements are combined with the advantages of a ventilated façade. Consisting of the sandwich element as the substructure (available in thicknesses of 120 to 180 mm), an extruded profile and the matching SFS self-drilling screws a multitude of design options in various materials are available for the design of the outer skin.

FOR WALL ELEMENTS

DESCRIPTION	FINISH
<ul style="list-style-type: none">● PV-READY  	<ul style="list-style-type: none">● Our sandwich elements are ideally suited for the easy integration of photovoltaics. We will be happy to support and advise you on the choice of possible systems. For MTW V ML 120 to MTW V ML 180, we offer you a customised solution with a corresponding carrier rail. Find out everything you need to know in the blog post MONTANATHERM® sandwich panels: ready for photovoltaics.
<ul style="list-style-type: none">● SANDWICH ELEMENTS WITH FIRE RESISTANCE  	<ul style="list-style-type: none">● From MTW V ML 140 to MTW V ML 180 in steel with PIR foam and EI 30 certificate. Panels with core of mineral wool on request.
<ul style="list-style-type: none">● MONTANATHERM® AIRSTOP 	<ul style="list-style-type: none">● For stricter air-tightness requirements. Available for MTW V ML 140 to MTW V ML 180.



ACCESSORIES

FOR ROOF ELEMENTS

DESCRIPTION

● CROWNS



● LIGHT ELEMENTS



● SLIDING PLATE



● SNOW AND ICE GUARD IN ALUMINIUM



● PLASTIC PROFILE FILLER



FINISH

● Aluminium with EPDM seal

Suitable for all MONTANATHERM® roof elements.

● Double-walled thermo elements made of glass fibre reinforced polyester. Montana light elements are delivered ready for installation and can be fitted in one operation together with the sandwich elements. Under the laws and regulations currently in force, appropriate fall protection devices must be fitted when carrying out roof works.

U value up to 1.1 W/m²K
max. L = 8500 mm

To place your orders, use the form at www.montana-ag.ch > Services > Requests and orders.

Suitable for MONTANATHERM® roof elements TL 85 - 165.

● SWISS PANEL® SP 44/1000

Overall width 1000 mm
Steel or aluminium coil-coated polyester 25 µm
Lengths 2000 up to 15 000 mm

Suitable for all MONTANATHERM® roof elements.

● T-profile Aluminium polished 60 x 40 x 4 – 3000 mm Securing holes ø 10 mm pre-punched Powder-coated on request

Sealant PVC 40 x 60 x 4 mm

Suitable for all MONTANATHERM® roof elements.

● Polyethylene PE, anthracite/white B2 according to DIN 4102, normal inflammability Face B for ridge and face A for eave

Suitable for all MONTANATHERM® roof elements.

FOR ROOF ELEMENTS

DESCRIPTION

- METAL FILLERS 



FINISH

- Steel or aluminium
Face B for ridge and face A for eave
Straight or canted

Suitable for all MONTANATHERM® roof elements.

- PV-READY 



- Our sandwich roof elements are ideally suited for the easy integration of photovoltaics. We will be happy to support and advise you on the choice of possible systems. Find out everything you need to know in the blog post MONTANATHERM® sandwich panels: ready for photovoltaics.

- SANDWICH ELEMENTS WITH 30 MIN FIRE RESISTANCE (VKF CERTIFIED) 



- MTD TL 165 and MTD TL 185 in steel with PIR high-resistance foam and REI 30 certification.



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