



FERROPLAST[®]
ThermoTechnology

FERROPLAST[®] Panels:
Underway on all roads

Configurator

just more.

Trailer

Services

Technology



FERROPLAST® – installed to meet your requirements.

This brochure not only presents you with the many advantages of the long-lived and outstandingly insulating FERROPLAST® sandwich panels, it also gives you the opportunity of selecting exactly the FERROPLAST® equipment and combinations that you require – for the roof, bulkhead and side walls as well as for the rear and side doors. Our modular system makes this possible.

Overleaf, you will find a table that lists all the components that you can combine with FERROPLAST®. Together with details for materials, thicknesses, lengths and heights as well as additional options. You can simply fill the table out in conjunction with our sales representative. Your entries from

the basis for the drawing up of your proposal.

So you can optimally orientate yourself, we present all the possible equipment components within this brochure together with numerous figures and explanations. So you can obtain an even better idea of the great variety.

Just one more tip: Always leave the table folded out as you page through the brochure. Then you can always see every option, so simplifying your desired configuration.

The Schmitz Cargobull modular system – for more flexibility and investment security – **just more.**

Please fill out or cross

Dimensions	<input type="text"/>	Length	<input type="text"/>	Width				
Material	<input type="text"/>	outer	<input type="text"/>	inner				
Thicknesses (mm)	<input type="radio"/>	25	<input type="radio"/>	80	<input type="radio"/>	120	<input type="text"/>	other
Lamps (number)	<input type="radio"/>	left	<input type="radio"/>	middle	<input type="radio"/>	right		

ROOF

FERROPLAST® bulkheads are specially prepared for the refrigeration unit.
Internal reinforcement guarantees safety and stability.

Refrigeration unit	<input type="text"/>	Manufacturer	<input type="text"/>	Model	<input type="text"/>	Special features	<input type="text"/>
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Dimensions	<input type="text"/>	Width	<input type="text"/>	Height
Material	<input type="text"/>	outer	<input type="text"/>	inner
Thicknesses (mm)	<input type="radio"/>	50	<input type="radio"/>	80
Additional cross member	<input type="radio"/>	<input type="text"/>		
Empty conduits	<input type="radio"/>	<input type="text"/>		

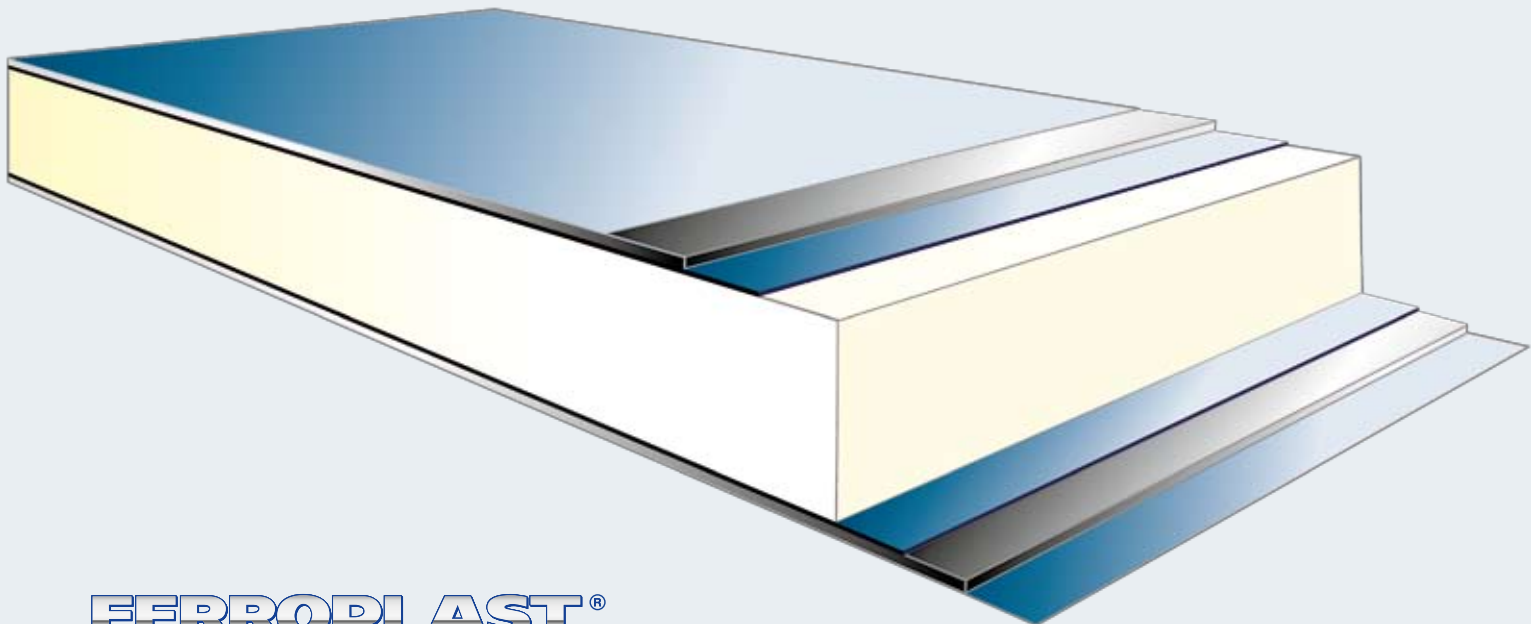
BULKHEAD

Dimensions	<input type="text"/>	Length	<input type="text"/>	Height								
Material	<input type="text"/>	outer	<input type="text"/>	inner								
Thicknesses (mm)	<input type="radio"/>	25	<input type="radio"/>	45	<input type="radio"/>	60	<input type="text"/>	other				
Standard additional options	<input type="text"/>											
Cargo shift protection	<input type="radio"/>	C	<input type="radio"/>	D	<input type="radio"/>	other	<input type="radio"/>	Contour 1	<input type="radio"/>	Contour 2		
Double-deck	<input type="radio"/>	E	<input type="radio"/>	Pallets	<input type="radio"/>	Z	<input type="radio"/>	ZI	<input type="radio"/>	n	<input type="radio"/>	Z2
Meat rack: Wall thicknesses (mm)	<input type="radio"/>	45	<input type="radio"/>	60	<input type="radio"/>	other						
Meat rack: Sheet reinforcement							<input type="radio"/>	F	<input type="radio"/>	G	<input type="radio"/>	n

SIDE WALL

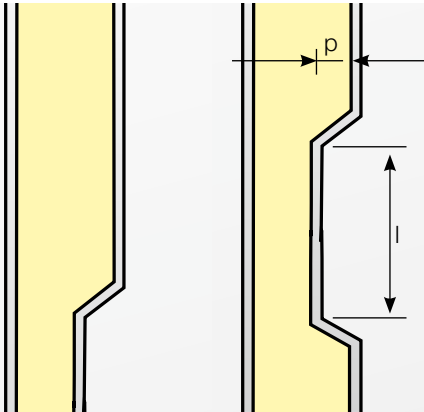
Rear doors													
Dimensions	<input type="text"/>	A-door frame width, internal	<input type="text"/>	B-door frame, internal									
Material	<input type="text"/>	outer	<input type="text"/>	inner									
Thicknesses (mm)	<input type="radio"/>	25	<input type="radio"/>	80									
Hinges (number)	<input type="radio"/>	three	<input type="radio"/>	four									
Espagnolettes (number)	<input type="radio"/>	one	<input type="radio"/>	two									
Length of the espagnolettes	<input type="radio"/>	inner	<input type="radio"/>	outer									
Side doors													
Dimensions	<input type="text"/>	A-door frame width, internal	<input type="text"/>	B-door frame, internal									
Material	<input type="text"/>	outer	<input type="text"/>	inner									
Thicknesses (mm)	<input type="radio"/>	25	<input type="radio"/>	45	<input type="radio"/>	60							
Vehicle side	<input type="radio"/>	left	<input type="radio"/>	right									
Side doors, one or two leaves	<input type="radio"/>	one	<input type="radio"/>	two									

DOORS



FERROPLAST®
 ThermoTechnology

FERROPLAST® is a stable and durable compound material with optimum insulation properties. On the inside, a polyurethane hard foam core and on the outside steel plate surface layers



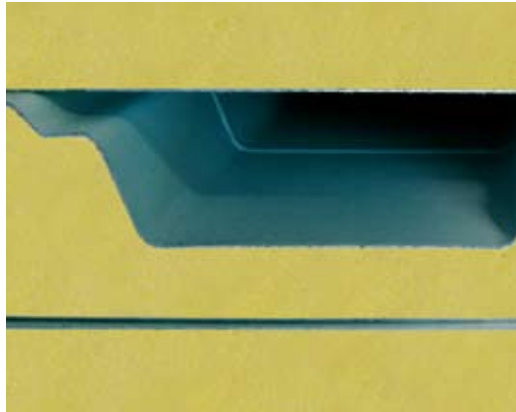
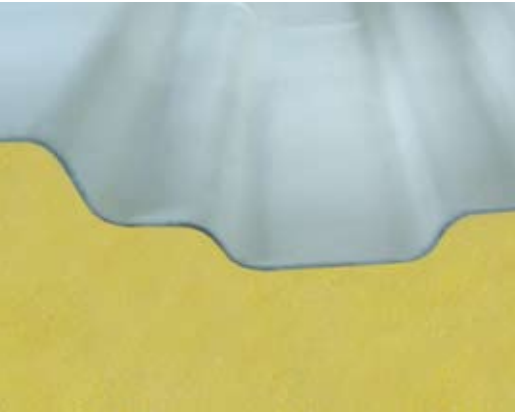
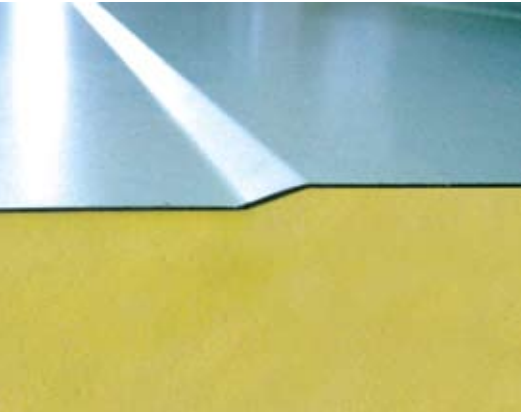
t: Well depth min. 3 mm, max. 15 mm

b Well width min. 120 mm



Innovative sheet forming enables the realisation of a wide range of horizontal rail systems and scuff rails in the side and bulkhead walls

Inlet position lights



Offset for scuff plates

Special well shapes upon demand

Preparation for roof duct



The Berlin plant



Cargobull Finance offers financing solutions for your vehicle fleet – quick and professional



All services are grouped together in our Cargobull Trailer Centers, including second-hand vehicle sales



After Sales service advises customers after purchasing



Just as well that the semitrailers are perfectly insulated. This ensures that groceries, packages and white goods arrive safely



1 Multi-temperature version / roof evaporator



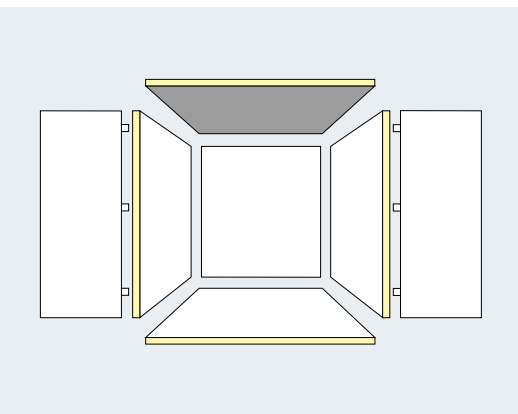
2 Longitudinally displaceable, insulated transverse partition



3 Flexible ventilation ducts



4 Strip curtain



FERROPLAST® roof

FERROPLAST® roof elements are optimally matched to special customer requirements. Alongside the installation options shown here, all necessary reinforcing and fixtures can be considered during production. This manufacturing “all of a piece” guarantees optimum insulation coefficients. Dependent on the vehicle concept, panel thicknesses are between 25 and 140 mm. The outer surface layers can be selected with either a primer or finished with a final white top coat, while on the inside they are PVC coated.

Roof

Additional options

- If desired, further inserts can be attached:
- Channels for air and coolant lines
 - Reinforcements for strip curtains, partitions and roof-mounted evaporators

Roof lights are embedded in the foam of the panel. “Perforation” of the insulating layers caused by subsequent fitting is avoided.

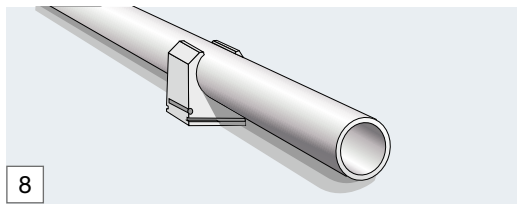
Cable ducts can be integrated in the panel in a wide variety of ways.



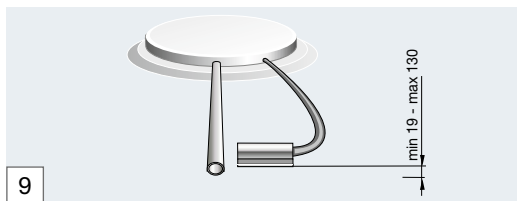
5 Inlet duct with pipe bracket in the roof area



6. Roof light
7. Pre-assembled lamp housing



8. Empty pipe (steel ø 16 mm) as a cable duct longitudinally beneath the inner layer (from FP 38) 9. Lamp connection with pipe or with moulding to the inner area





10

Meat rack

FERROPLAST® roof installation options

Meat rack

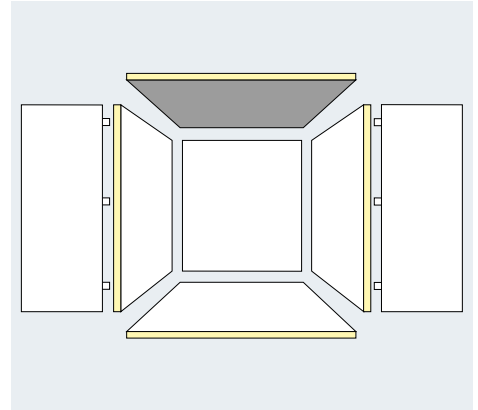
To transport hanging meat, the roof panels are reinforced with Z-profiles, which are approved for supporting a load of some 1,200 kg per running metre (with matched side wall construction).

Reinforcement arrangement

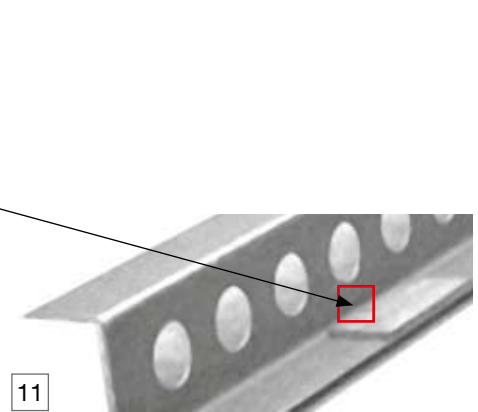
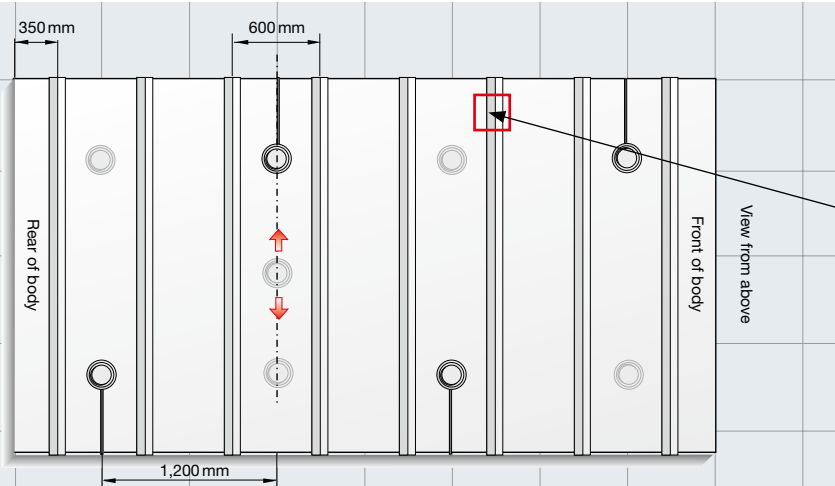
The Z-reinforcements, which are embedded in the foam every 600 mm, ensure great strength of the flat insulation.

Lighting arrangement

The lights and connections can be embedded in the foam of the panel according to your wishes, each in the middle of the sheet (spacing 1,200 mm).



Roof installation options



11

The Z-steel profiles are reinforced with flat steel bars for securing the pipe runs.



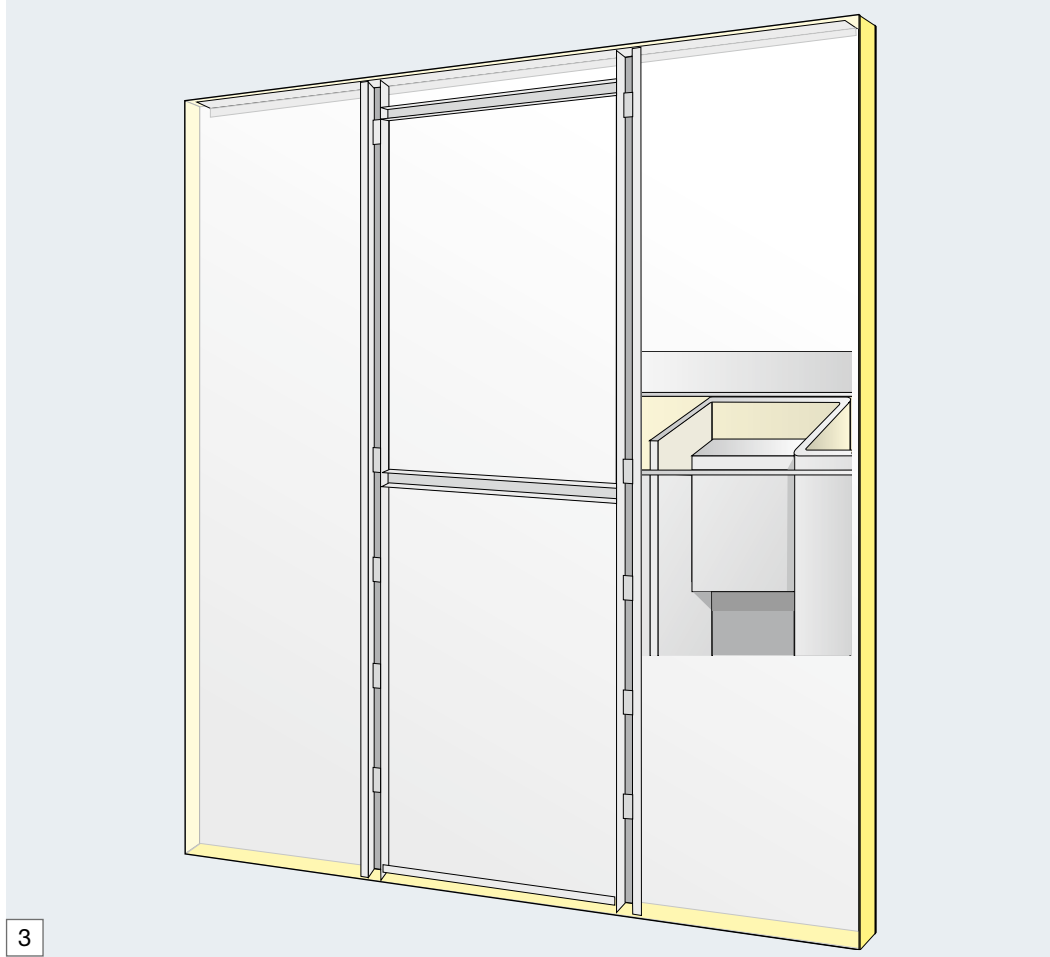
1

Prepared for the particular make of refrigeration unit



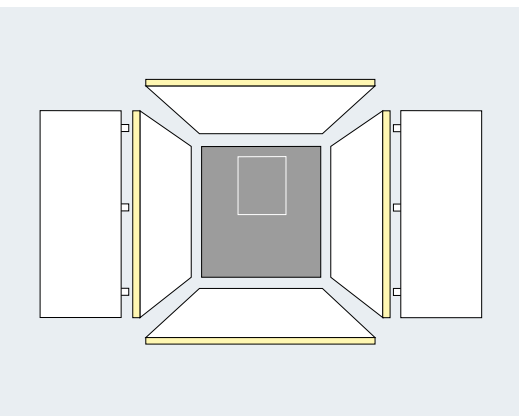
2

Bulkhead with wood reinforcement



3

Inner reinforcements

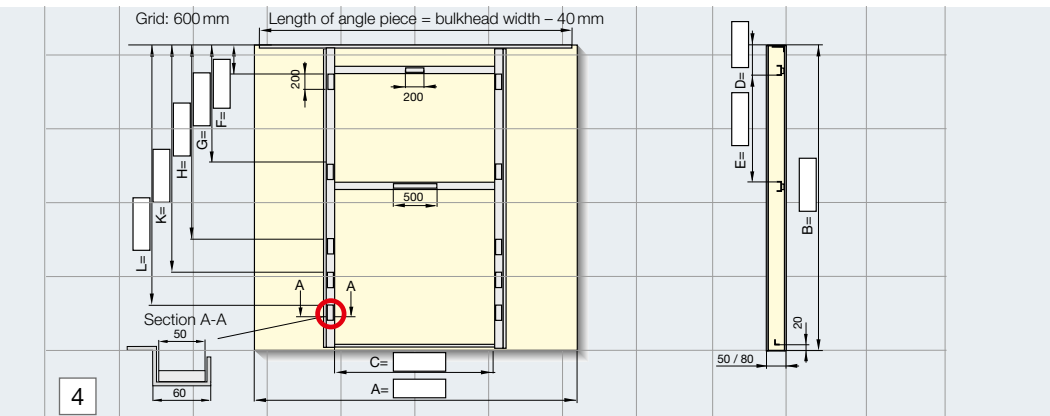


Bulkhead

FERROPLAST® bulkhead

FERROPLAST® bulkheads contain, as required, and in accordance with the design specifications of the refrigeration unit manufacturer, reinforcement frames embedded in the panel foam. These ensure the greatest possible panel strength, while at the same time ensuring continuous insulation. In addition FERROPLAST® bulkheads can be additionally fitted with empty pipes and coolant channels.

- A Bulkhead overall
- B Bulkhead height overall
- C Column spacing
- D Separation to 1st cross member
- E Separation to 2nd cross member
- F – L 1.-5th column reinforcement



4



1

Lip seal (two of four fins)



2



3

Customs seal



4

Rear access ladder



5

Door leaves can be pivoted through 270°



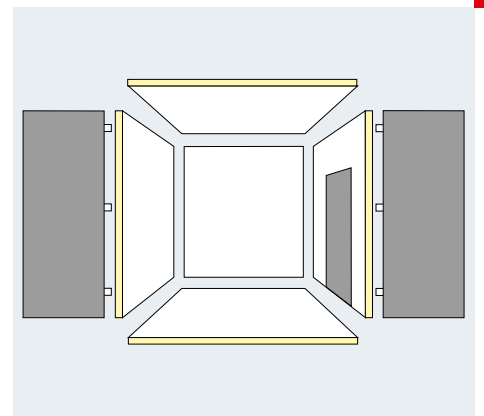
6

Side door with access ladder

FERROPLAST® doors

FERROPLAST® door elements prevent thermal bridging. Durable and easily exchangeable lip seals prevent the cold from escaping. Dependent on the version, the lip seal has two or four fins.

The door leaves have peripheral light alloy border profiles which are embedded in the foam. Surface layers from 0.6 mm galvanized steel sheet have an oven-baked primer on the panel outer surface and are PVC coated on the inner surface (other materials upon request). Reinforcements, suitable for the fitting of espagnolettes and hinges are fitted as standard. The seals are, dependent on the model, supplied loose.



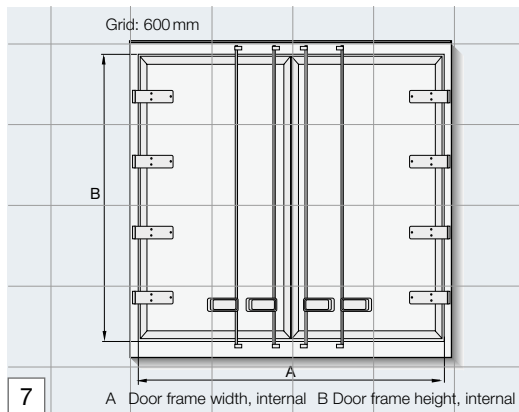
Doors

Rear doors

- standard thicknesses: FP 25, FP 80
- exchangeable rubber seals
- door leaves can be pivoted through 270°
- one or two espagnolettes per door leaf
- three or four surface-mounted hinges per door leaf
- two, three or four-leaf

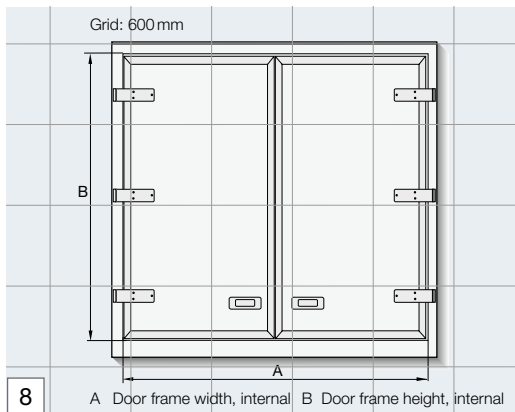
Side doors

- standard thicknesses: FP 25, FP 45, FP 60
- side doors, one or two leaves
- exchangeable rubber seals
- Door leaves can be pivoted through 180°



7

Surface mounted locks



8

Recessed locks



1

Additional load securing rails inlet in the side walls



2

Load securing rails inlet in the side walls



3

Double deck system



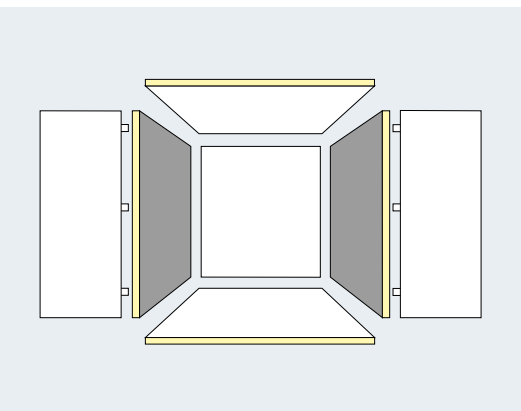
4

Longitudinal partition



5

Scuff rails



FERROPLAST® side wall

FERROPLAST® side wall elements are matched, to a high degree, to meet special requirements. Dependent on the application, panels are prepared as:

- Side wall standard
- Side wall for load securing
- Side wall for double deck loading
- Side wall for meat rack

Made to measure

Alongside the installation options mentioned, other reinforcements, wells and impressions can be individually considered even during panel manufacture.

Options

If desired, further inserts can be attached:

- Channels for air and coolant lines
- Empty conduits
- Wells for inlet scuff plates
- Other well widths with continuous wells are available

Partition installation

The use of partitions means variable inner compartments can be created which can be maintained at different temperatures. The standard partition design generally has both sides coated with PVC or GRP.

Side wall



6

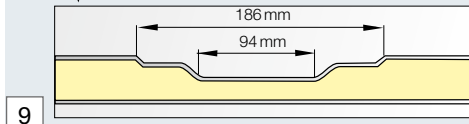
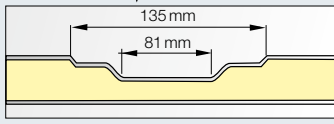
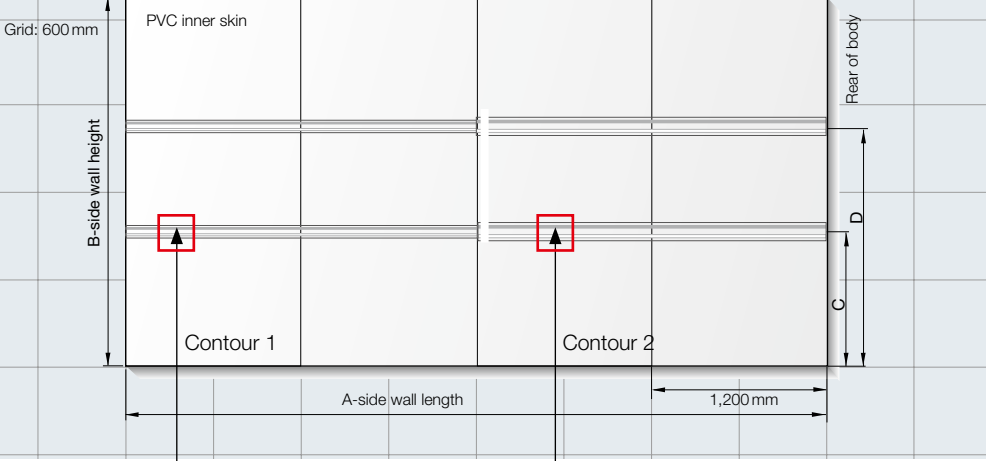
Combination of double deck loading and load securing system.

Side wall for load securing

Options

If desired, further inserts can be attached:

- Reinforcement for W.KO
- Empty conduits as cable duct
- Channels for air and coolant lines as well as defrosting systems

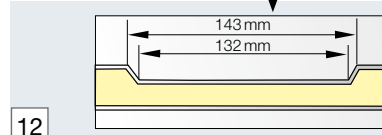
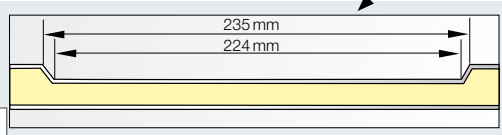
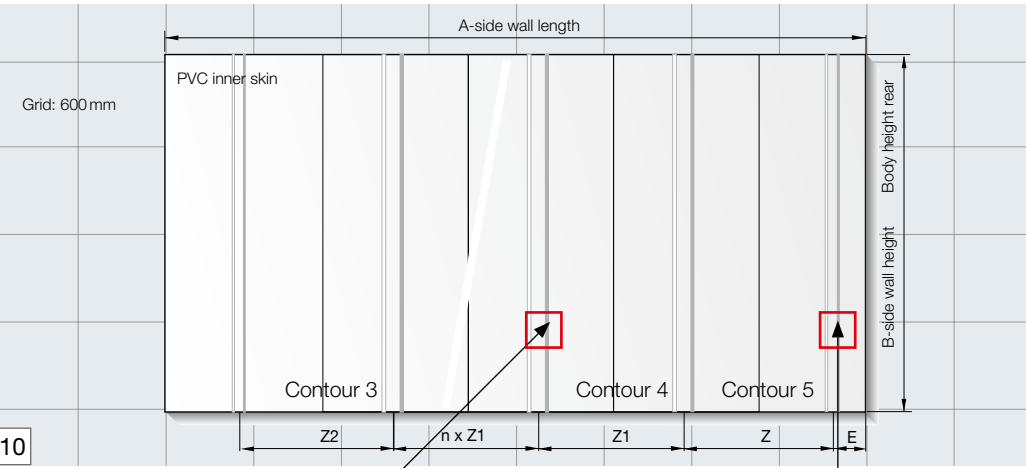


7. Side wall example with wells for load securing 8. Well for load securing rail (riveted)
9. Wells for load securing rails (glued)

Side wall for double deck loading

Options

- Reinforcement for W.KO
- Empty conduits as cable duct
- Channels for air and coolant lines as well as defrosting systems
- Through double deck or offset double deck possible
- Offset double deck can be combined with load securing rails



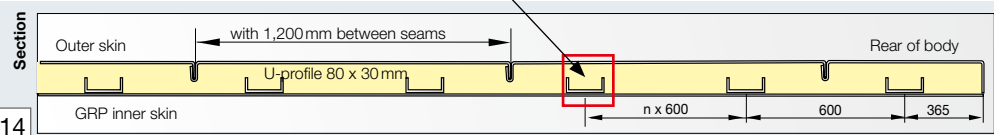
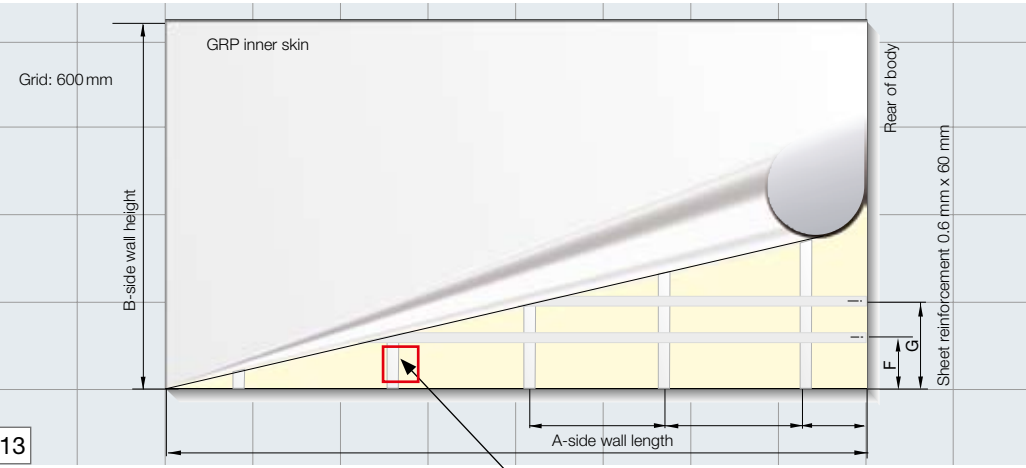
10. Side wall example with wells for double deck 11. Contour for double rail
12. Contour for single rail

Side wall for meat rack

Side walls for meat racks are available from 45 mm in the standard widths. For these requirements, they must be reinforced with profiles that match those in the roof. Generally meat rack panels have an inner GRP skin. Other material combinations with stainless steel or steel sheet (PVC coated) are possible.

Options

- Reinforcement for W.KO
- Empty conduits as cable duct
- Channels for air and coolant lines as well as defrosting systems



13. Side wall example for meat rack
14. Section



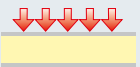
Insulating core

Polyurethane hard foam, the large-surface foaming process results in an absolute union with the surface layers, foam raw density, approx. 55-95 kg/m³.



Chemical and biological behaviour

Resistant to readily-available chemicals, odourless, resistant to rotting and decay, resistant to fungi and microbes, physiologically harmless, certificated at harmless for foodstuffs.



Pressure resistance*

50 t/m² with 10 % inwards compression.

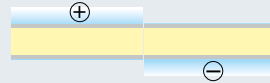
* depends on panel thickness and material combination



Tensile strength*

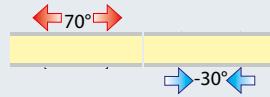
320 N/mm² (StE 320)

* depends on panel thickness and material combination



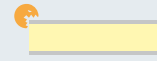
Vapour-tightness

When used with metal surface layers, absolutely vapour-tight, thus no loss of insulating performance or payload due to the absorption of water.



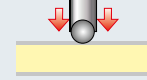
Thermal expansion

The coefficient of expansion of steel is only some 50 % that of aluminium and some 30 % that of GRP, the residual thermal expansion is completely taken up by the clinch seams, with no enduring deformation.



Corrosion resistance

Chemical-physical protection due to the cathodic effect of zinc/steel.



Penetration resistance*

With a ball diameter of 20 mm, forces of up to 300 N resulted in no lasting deformation.

* depends on panel thickness and material combination



Heat capacity

The heat capacity of steel surface layers is significantly lower than that of GRP, so that during cooling of the vehicle interior, considerable energy savings can be achieved.



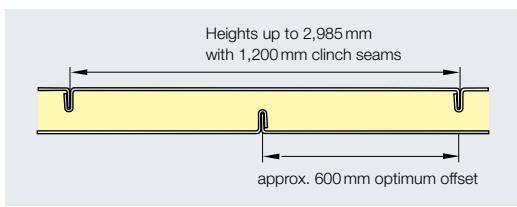
FERROPLAST® standard dimensions

FERROPLAST® is a stable and durable compound material with optimum insulation properties. On the inside, a polyurethane hard foam core and on the outside steel plate surface layers.

Thick-ness mm	Length max. mm	Width max. mm	Foam density approx. kg/m ³
25	14,885	2,985	85-95
30	14,885	2,985	80-85
38	14,885	2,985	70-76
45	14,885	2,985	68-71
50	14,885	2,985	68-71
60/65	14,885	2,985	68-71
80 (85)	14,885	2,985	62-66
100/105	14,880	2,985	60/64
120/125	14,850	2,650	55-60
140/145	14,850	2,650	55-60

FERROPLAST® properties

Material:	Thickness / Designation	Characteristics
Steel plate, primed-beaded	0.60 mm / FP	Thin sheet, quality S280 GD with Galfan zinc coating 185 g/m ² on both sides, Coating: Primer approx. 14 µm
Steel sheet PVC coated	0.60 mm / FP	Thin sheet, quality S280 GD with Galfan zinc coating 185 g/m ² on both sides, Coating: Resin PVC film approx. 120 µm, colour: RAL 9002 or similar, harmless for foodstuff transport
Steel sheet, painted clinched	0.60 mm / FP	Thin sheet, quality S280 GD with Galfan zinc coating 185 g/m ² on both sides, Coating: Platal-E with structured surface and protective film, colour: RAL 9010 or similar 4 layer paint coating with a PU basis
Stainless steel sheet, clinched	0.60 mm / FPV	Stainless steel 1.4301
Aluminium, smooth	1.20 mm / FPA	AL 3003 H275 / maximum height 2,600 mm, coating: oven-baked sprayed, colour: RAL 9016 or similar, polyester-based paint
GRP on inner surface, smooth	2.00 mm / FPK	fabric-reinforced GRP with 50 % glass fraction, surface: structured, colour: RAL 9016 or similar, harmless for foodstuff transport
GRP for outer, smooth	2.00 mm / FPK	Fabric-reinforced GRP, surface: gel-coat, colour: RAL 9016, paintable



Section through a FERROPLAST® panel:

For heights between 2,985 mm and 3,450 mm there are special solutions.



ROOF



BULKHEAD / DOORS

FERROPLAST® Panel Transport

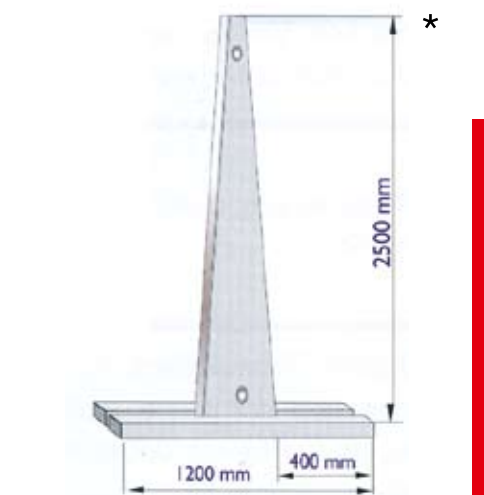
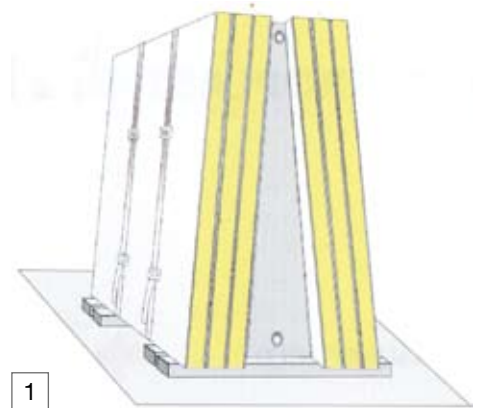
The panels are transported on "A-racks". 2 "A-racks" make up a transport unit, which can have a maximum gross weight of 6 t. The vehicle carrying the load, must be capable of being loaded from the upper rear.

Loading

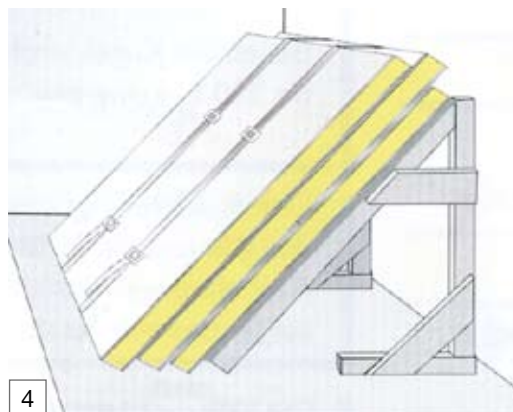
The "A-racks" remain the property of Schmitz Cargobull AG. They can be stacked in a space-saving manner when returned.

Special loading

For special loads without "A-racks", we charge for shipping on a one-off basis. Slanted loads up to 1 t in weight are permitted.



2 * The inner clearance height of the vehicle is calculated as panel height + 60 mm, however at least 2,500 mm.



SIDE WALL

PROPERTIES / TRANSPORT

3.+4. Loading on a slant

1.+2. Loading using A-racks



The Trailer Company.

Trailer

Reefer semitrailer



Curtainsider



Tipper trailer



Intermodal transport



Services

- Consulting
- Finance
- Full Service
- Spare parts
- Repairs
- Telematics
- Second-hand vehicles
- Service Partner Network