



A Tata Steel Enterprise

SWISS PANEL®.

Trapezoidal and corrugated profiles made of steel and aluminium



SWISS MADE⁺



VERSATILE. TRIED AND TESTED. SWISS PANEL®.

SWISS PANEL®

SWISS PANEL® corrugated and trapezoidal profiles form the heart of Montana Building Systems Ltd. The profiles are suitable for roofs, ceilings and façades, especially on industrial and commercial buildings. The different profile designs combined with the diverse MONTACOLOR® colours provide planners and architects with a large number of design possibilities.

AESTHETICS

More and more architects are experimenting with the optical properties of perforated SWISS PANEL® profiles, with special attention being paid to the selective light transmitting capacity of the profile panels. Ask for our detailed brochure no. 7.9.

ACOUSTICS

It is no longer workplace layout recommendations that are at the centre of noise control measures; the focus is now on the statutory regulations concerning industrial room acoustics. Perforated SWISS PANEL® corrugated and trapezoidal profiles create a very appealing effect architecturally and ensure agreeable acoustics. The twofold function as sound-absorbent and bearing profiles on the roof and walls makes Montana acoustic profiles extremely interesting from the economic point of view. Ask for our detailed brochures no. 7.9 and 7.10.

CURVES IN ARCHITECTURE

The curving of Montana SWISS PANEL® profiles stimulates the imagination of architects and building designers. Thanks to top engineering and technology, Montana is able to deliver selected SWISS PANEL® profiles in prebent concave or convex form to the construction site. Ask for our detailed brochure no. 6.7.

PREBENDING BY SNAPPING

Prebending by snapping is a proven and technically perfected method for corner or roof ends with SWISS PANEL® profiles. Façades or roofs are rounded off elegantly, thanks to minimum radii of up to 300 mm being possible. Buildings with curved edges give a softer effect, which can be a distinct advantage in relation to the volume of the structure. Ask for our detailed brochure no. 6.8.


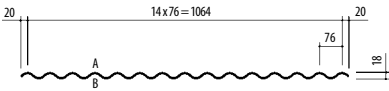

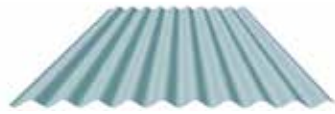
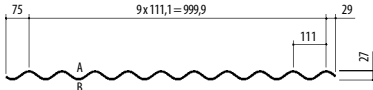

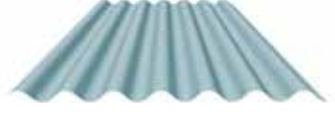
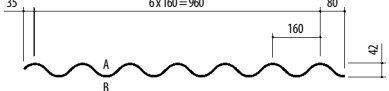

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SWISS PANEL®

PROFILES FOR FAÇADES AND ROOFS IN STEEL AND ALUMINIUM

Corrugated profiles, can be supplied also with felt or with perforation

PROFILE	THICKNESS mm	PERFORATION	FELT	Antidrumming	PREBENDING in factory	PREBENDING by snapping	
							Full perforation
SP 18/76  	Steel kg/m ²	●	●	●	●	●	
	Aluminium kg/m ²	●	●	●	●	●	
	Chrome steel kg/m ²	●	●	●	●	●	●
	0.70	0.75	0.80	0.88	1.00	1.25	
SP 18/76 A 	Steel kg/m ²	●	●	●	●	●	
	Aluminium kg/m ²	●	●	●	●	●	
	Chrome steel kg/m ²	●	●	●	●	●	●
	0.70	0.75	0.80	0.88	1.00	1.25	
SP 27/111  	Steel kg/m ²	●	●	●	●	●	
	Aluminium kg/m ²	●	●	●	●	●	
	Chrome steel kg/m ²	●	●	●	●	●	●
	0.70	0.75	0.80	0.88	1.00	1.25	
SP 27/111 A 	Steel kg/m ²	●	●	●	●	●	
	Aluminium kg/m ²	●	●	●	●	●	
	Chrome steel kg/m ²	●	●	●	●	●	●
	0.70	0.75	0.80	0.88	1.00	1.25	
SP 42/160  	Steel kg/m ²	●	●	●	●	●	
	Aluminium kg/m ²	●	●	●	●	●	
	Chrome steel kg/m ²	●	●	●	●	●	●
	0.70	0.75	0.80	0.88	1.00	1.25	
SP 42/160 A 	Steel kg/m ²	●	●	●	●	●	
	Aluminium kg/m ²	●	●	●	●	●	
	Chrome steel kg/m ²	●	●	●	●	●	●
	0.70	0.75	0.80	0.88	1.00	1.25	

PROFILES FOR FAÇADES AND ROOFS IN STEEL AND ALUMINIUM

Trapezoidal profiles, can be supplied also with felt or with perforation

PROFILE	THICKNESS mm	PERFORATION	FELT	PREBENDING in factory	PREBENDING by snapping
● SP 20/154	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 20/154 A	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 26/143	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 26/143 A	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 30/221	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 30/221 A	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 35/207	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 35/207 A	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●

Sides A and B are possible sides for coating. For further information, see the sections "Use in the roof" and "Use on walls" on page 10.

SWISS PANEL®

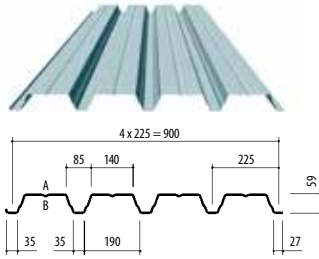

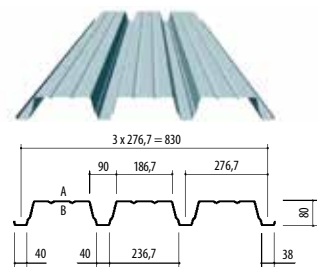

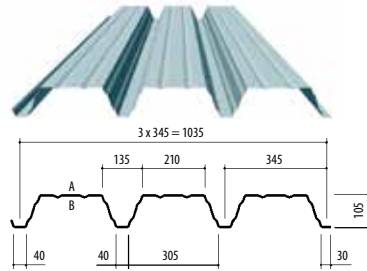

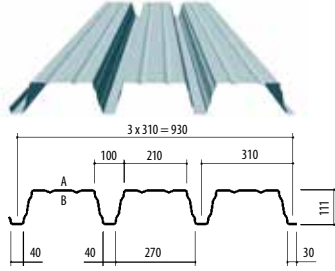
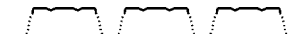
PROFILES FOR FAÇADES AND ROOFS IN STEEL AND ALUMINIUM

Trapezoidal profiles, can be supplied also with felt or with perforation

PROFILE	THICKNESS mm	PERFORATION	FELT	PREBENDING in factory	PREBENDING by snapping
● SP 40/183	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 40/183 A	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 41/193.5	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 41/193.5 A	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 44/333 suitable to MTD TL	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 44/333 A with support	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 45/150	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●
● SP 45/150 A	Steel kg/m ²	●	●	●	●
	Aluminium kg/m ²	●	●	●	●
	Chrome steel kg/m ²	●	●	●	●

ROOF PROFILES IN STEEL

Trapezoidal profiles, can be supplied also with felt or with perforation

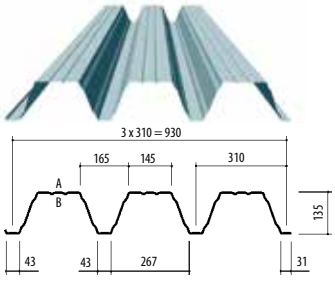

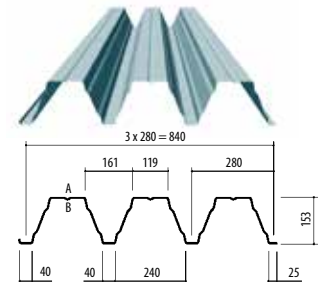

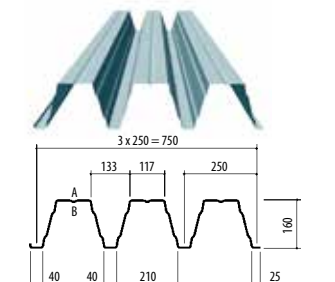

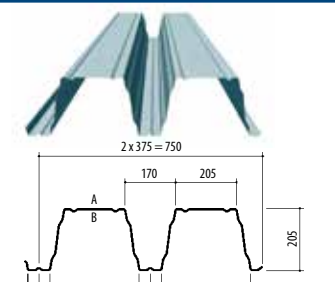
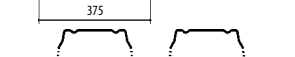
PROFILE	THICKNESS mm	PERFORATION			FELT			PREBENDING in factory	PREBENDING by snapping				
		Full perforation	On web	On upperflange	Anticondensation	Acoustic	Antidrumming						
SP 59/225 	Steel kg/m ²	7.78	8.33	8.89	9.78	11.11	13.89	•	•	•	•	•	•
	Aluminium kg/m ²	2.67		3.06		3.82		•	•	•			
	Chrome steel kg/m ²			8.89									
SP 59/225 A 													
SP 80/277 	Steel kg/m ²	8.43	9.04	9.64	10.60	12.05	15.06	17.93	•	•	•	•	•
	Aluminium kg/m ²	2.90		3.31		4.14			•	•	•		
	Chrome steel kg/m ²			9.64									
SP 80/277 A 													
SP 105/345 	Steel kg/m ²				10.20	11.59	14.49	17.39	•	•	•	•	•
	Aluminium kg/m ²			Aluminium on request!					•	•			
SP 105/345 A 													
SP 111/310 	Steel kg/m ²				11.35	12.90	16.13	19.35	•	•	•	•	•
	Aluminium kg/m ²			Aluminium on request!					•	•			
SP 111/310 A 													

Sides A and B are possible sides for coating. For further information, see the sections "Use in the roof" and "Use on walls" on page 10.

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ROOF PROFILES IN STEEL AND ALUMINIUM

Trapezoidal profiles, can be supplied also with felt or with perforation

PROFILE	THICKNESS mm	PERFORATION	FELT	PREBENDING in factory	PREBENDING by snapping							
						Full perforation	On web	On upper flange	Anticondensation	Acoustic	Antidrumming	
SP 135/310 	Steel kg/m ²	●	●	●	●	●	●	●	●	●	●	●
	Aluminium kg/m ²	●	●	●	●	●	●	●	●	●	●	●
SP 135/310 A 												
SP 153/280 	Steel kg/m ²	●	●	●	●	●	●	●	●	●	●	●
	Aluminium kg/m ²	●	●	●	●	●	●	●	●	●	●	●
SP 153/280 A 												
SP 160/250 	Steel kg/m ²	●	●	●	●	●	●	●	●	●	●	●
	Aluminium kg/m ²	●	●	●	●	●	●	●	●	●	●	●
SP 160/250 A 												
SP 200/375 	Steel kg/m ²	●	●	●	●	●	●	●	●	●	●	●
	Aluminium kg/m ²	●	●	●	●	●	●	●	●	●	●	●
SP 200/375 A 												

SERVICE

BASIC DATA AT A GLANCE

STANDARD MATERIAL

Ex warehouse, see our delivery programme in the MONTACOLOR® colour card.

DELIVERY LENGTHS

From 0.5 up to 22 m, according to feasibility.

TOLERANCES

According to EPAQ quality guidelines.



www.montana-ag.ch

With additional information and references.



CAD

For downloading as dwg or dxf.
www.montana-ag.ch > Products > CAD



Dimensioning tables

You can download them at
www.montana-ag.ch > Products > Statics.



Dimensioning software

Request program.
www.montana-ag.ch > Services > Dimensioning software.



Perforation/Acoustics

All information in the leaflet Acoustics 7.9. For downloading.



Colour chart

MONTACOLOR® Collection with full summary. For downloading.



Tender texts (CH)

Prepared texts.
www.montana-ag.ch > Services > Tendering texts.

Parkhaus Norline, Rümliang (CH)

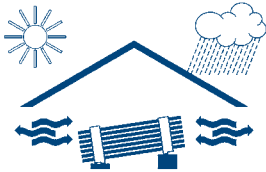


FITTING RECOMMENDATIONS

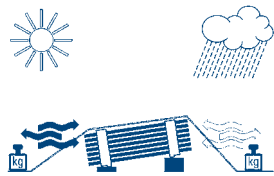
CHECK BEFORE STARTING INSTALLATION

The condition and quality substructure have to be checked for evenness, squareness and necessary support widths, etc. If there are faults, shortcomings or defects that make fitting difficult or even impossible, the customer is to be notified in writing with a request to rectify the situation.

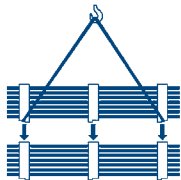
STORAGE



A suitable storage area must be provided for the storage of construction components. The packages must be stored in a dry place on the building site with a slight longitudinal gradient to allow rain water to run off.

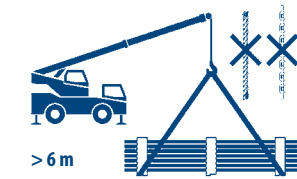


If not used straightaway, the material should be covered with aerated natural tarpaulins (not plastic sheeting).



Packages may be stacked a maximum of two high. It must be ensured in this regard that the wooden transport security blocks are lying on top of each other.

In the case of moisture without adequate air supply, „white rust“ can form on galvanised building components within a matter of days. Check whether the aluminium feels cold! If it does, store the aluminium building components in a cool closed room with no draught to allow the aluminium to warm up slowly. If this is not done, a black coloration through the inclusion of particles can form on the aluminium! In the case of materials with an additional plastic coating, storing incorrectly for a long period of time can even lead to corrosion of the metallic protective layer.



Unloading, handling and moving on the construction should only be done using lifting straps so as to protect the organic coatings and felt.



In the case of short packages up to 6 m long, raising and lowering can also be carried out using a forklift truck in a proper manner with protected forks (e.g. rubberised rests), except for profiles with an anticondensation felt, which may only be raised using lifting straps.



In the case of packages of 6 m and more, precautions must be taken against the risk of sagging or bending! To avoid this, additional lifting straps have to be used on the building site with crane girders or lifting beams. It must be ensured that the packages are evenly balanced when lifting. The edges of the packages should be protected at the top, e.g. with timber battens.

USE IN THE ROOF

The slope of pitched roofs should not be less than 6%. With slopes of less than 10%, it may be necessary, depending on the location, to seal the longitudinal and lateral butt joints with suitable sealing strip.

Trapezoidal profiles are laid in the roof as an outer shell in the negative position, i.e. side B to the outside. This means that the overlapping point is on the top of the corrugated curve, thus preventing water from penetrating. According to the information provided by the screw supplier, high or low bead fitting is possible for trapezoidal profiles in the roof. With regard to high bead fitting, the 'state of the art' here is a self-tapping fastener with support thread (e.g. SPEDEC SXC or SXCW). The corrugated or sinusoidal profiles are screwed into the roof on the top of the corrugated curve, designated as outside A. The support panels for flat roofs and the inner shell for two-layer roofs are generally laid in the positive position, i.e. profile side B to the inside. This guarantees good support for the vapour barrier and heat insulation. The

inner shell is normally gunned onto the steel substructure in the low bead, but it can also be screwed on. Lateral butt joints on profile panels acting as the outer shell must always be adapted to local conditions, i.e. sealed accordingly, as must the longitudinal overlaps if the slope of the roof is shallow. Attention has to be paid to accessibility depending on profile, material, panel thickness and the span chosen. In the case of high aesthetic demands concerning the view of the roof from below, only panels with a material thickness of 0.80 or 1.00 mm are chosen sometimes. The rule of thumb here is for an accessibility width of approx. 1.2 to 1.85 m, though a maximum of 2 m (limit support width) for steel panels with approx. 40 mm profile height and a thickness of 0.70 - 0.75 mm. A minimum thickness of 0.80 or, more preferably, 1.00 mm is to be recommended for aluminium profiles in the roof, otherwise appropriate precautionary measures have to be taken during fitting work.

USE ON WALLS

In the façade, the trapezoidal profiles are normally laid in the positive position, i.e. side A to the outside. They are therefore secured in the low bead or rib. The same applies for corrugated profiles. As a rule of thumb, they are secured on each support in every second rib. This profile position produces a nicer aesthetic effect and also provides for optimum rear ventilation. In the case of a trapezoidal profile position with side B to the outside, the flat area normally shows a slight "dent" at the securing points, which is why this should not really be recommended for façades. Trapezoidal and corrugated profiles can be overlapped vertically for lateral butt joints. This should be avoided for corrugated profiles in the horizontal profile position on aesthetic grounds. The length of corrugated profiles should therefore be interrupted through appropriate joints or pilaster strips. This ensures that the profiles have the necessary dilatation for expansion and the avoidance of 4-fold overlapping points at the lateral butt joint, which otherwise have to be notched in a concealed manner sometimes for aesthetic reasons. There are special fasteners with ring nuts for the necessary scaffold anchoring, which can be replaced again continuously when dismantling the scaffold. Our general instructions and guidelines according to IFBS shall otherwise generally apply.

SECURING

Securing is to comply with the latest standards according to DIN, SIA, SZSB7 as well as the general guidelines according to IFBS, i.e. in accordance with the measuring of wind suction and compressive forces as well as snow loading depending on the shape of the building, dimension and location. The roof and wall profiles are screw-fastened by means of licensed and commercially available fasteners. There are self-tap-

ping fasteners or threaded screws available for this and the correct length has to be selected depending on whether the substructure is on wood or steel. When dimensioning, note should be taken of the stripping values given by the manufacturer. Only rust-proof fasteners and washers with seals are to be used on the outer skin. The electric screwdriver must in any case have an adjustable depth stop. Only the correct setting of the depth stop can ensure good screw fastening with washers and prevent visible dents or pressure marks. The panel overlaps on the side should be screw-fastened approx. every 50-60 cm or depending on the distance between the purlins or cross bars. The structural calculations of our different profile types are set out in our design tables. The substructure must be perfectly flat. For thin-walled profile panels it is advisable to choose a metal substructure, but this is absolutely necessary for aluminium profiles. More information is contained in our general documentation and the various design details. Expansion of the profiles also has to be taken into account depending on the choice of material and panel lengths, especially in the case of long aluminium profiles in the roof area (> 6 m). In practice, this is sometimes done through fixed screw fastening in the centre as well as large holes and possibly additional crowns. The most reliable solution, however, is that with matching sliding elements to prevent clicking and cracking noises or screws stripping. Accordingly, the connections and ends should be made slidable by means of additional retaining clips or adhesive strips. The prerequisites for perfect fitting are detailed planning, professional handling of metal profiles, knowledge of materials and the choice of suitable tools.



SNOW LOAD ZONES

The stipulations of the estimated loads resulting from constant and variable influences (e.g. snow and wind) within the meaning of the DIN 1055 standard are possibly not clear. The correct pre-selection/dimensioning of all construction elements provided by us must be checked on the site in a responsible manner. Clarifying the need for passing on the site inspection to third parties, e.g. test engineers, construction supervision authorities, developers, planners, etc. is the responsibility of our customers.

SIA standard 261, edition 2003/04, Influences on supporting structures, applies to Switzerland.

COLOUR PROTECTION FILMS

The colour protection film must be removed immediately before or after fitting! SWISS PANEL® profiles with colour protection films must be fitted within 4 weeks of delivery. The colour protection film must be removed within this period! The colour protection films are to be protected against ultraviolet rays. It can be more difficult to remove the film at temperatures above +25°C or below +1°C!

LAYING

The direction of fitting must be set against the prevailing weather direction on account the side overlaps! Building elements with metallic coloured surfaces and in aluminium mill finish must be laid in the same direction! The direction of the arrow (run direction) must be heeded in this regard.

Before actually fitting, the division of the construction elements is to be marked on the roof or ceiling and wall areas according to the laying plan by marking the overall widths on the sub-structure. The profile panels must be handled

very carefully, especially in the case of coated surfaces; it is advisable to work with clean working gloves. It should always be borne in mind that a high-quality finished construction element is being fitted, with the shell and finishing work combined in one operation. Protective films of the surfaces of construction elements are to be removed according to the manufacturer's instructions. Major deformations, especially bends or kinks on the edges of the construction elements, can reduce load capacity. If the required structural safety is no longer assured, such damaged construction elements may not be installed. The elements from opened packages are to be protected against stormy weather, especially after finishing work. Placing weights on top is normally not sufficient. Bracing has to be used with ropes or cords. When fitting on roofs, precautions must be taken against items falling inside the building and on the outside edges of the building in accordance with the relevant regulations in force!

CUTTING WORK

Necessary cutting work – e.g. for roof openings, recesses and adaptation work on the edge of the roof - should be performed using tools that cut without producing sparks. Suitable for cutting Montana profile panels are jigsaws with a large cutting depth and suitable saw blades with 1 mm tooth spacing, as well as handheld circular saws. Also used for cutting profile panels and edge strips are electrical plate shears or so-called "nibblers", which also produce a clean cut crossways to the profile.

Abrasive cut-off machines should not be used because this destroys the metallic covering in the area of the cut and, therefore, the cathodic

protection effect. In the latter case, coated, exposed panel areas, in particular, must be protected against flying sparks as the metal fragments can otherwise lead to corrosion in certain areas.

In addition to the machines referred to, tools such as manual plate shears, folding pliers, hammers, try-squares and mitre square, etc. are also needed. After fitting, visible cuts and, in particular, cuts exposed to weather should be touched up with paint.

REPAIR WORK

Damaged areas of zinc coatings and 55% AlZn (aluminium-zinc) coatings can be repaired by coating with zinc dust paint.

Damage to the organic coating can occur even during the most careful fitting. Such damage (scratches) does not normally penetrate the overall protective system comprising the metallic layer and coating as the steel substrate is also still covered with corrosion protection in these damaged areas.

Make sure what coating system has been applied (polyester, PVDF, Tedlar etc.). First clean the area to be repaired; it must be clean, dry and free of grease! Only use original touch-up paints! This will ensure the best possible colour match!

Mechanical damage to coatings can be repaired using special touch-up paints with a fine brush on areas as small as possible so as to keep unavoidable differences in colour and gloss level as small as possible. In the case of coil-coated construction elements cut on the construction site, the cut areas should be treated with touch-up paint if they are visible or exposed to the weather after being fitted.

PROFILE FILLER, SEALING MATERIALS

Polythene profile fillers are to be protected against falling out and movement with a solvent-free adhesive. Sealing measures in roof and wall systems are to be applied with the sealing strips stipulated in the laying plan on the longitudinal and lateral butt joints and connecting points. Acid hardening sealing compounds may not be used.

CLEANING

Occasional soiling of the construction component surfaces cannot always be avoided even when exercising the greatest care, with the result that subsequent cleaning is required. To minimise this additional work as far as possible, please take note of the following when fitting the profiles:



1. Work carefully, avoid soiling and damage to the coating, especially when cutting coated elements.
2. Do not leave any protective films on the site during installation; however, remove the protective film immediately after finishing work.
3. Remove borings straightaway – preferably by blowing them away. This also avoids subsequent rusting through the effects of moisture (crevice corrosion).
4. Remove dirt before drying as far as possible; this applies, in particular, to tar and bitumen runs.
5. Before cleaning, an appropriate small test area should be cleaned first to see the effects!



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