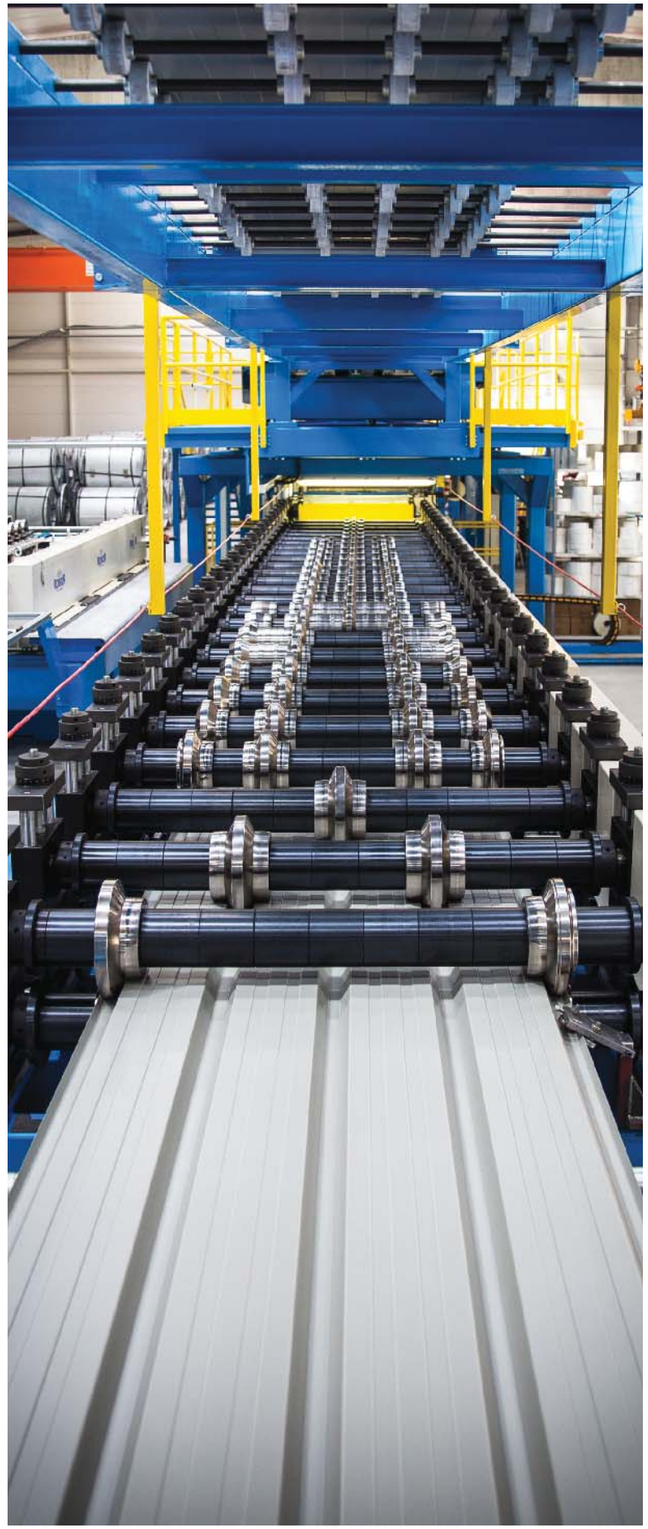
alternativa

Tvornica termopanela i profilisanih limova



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Introduction by General Manager

Dear friends, thank you for your time and interest in the production line of our Company. We are especially thankful to our loyal customers and business partners who had trust in us in any way.

Our Company was formed with clear development objectives, which, due to post-war circumstances, resembled dreams more than reality. For this reason, I frequently recall words a renowned contemporary who had asked us B&H businessmen on a meeting what we dreamt about as managers and company owners. He said that present day flights by super modern airplanes relied on bygone dreams of a enthusiast who tried to fly on improvised wings in his days. For Alternativa, the wings were our desire, enthusiasm and devotion of all employees, as well as broad support of our business partners.

By present days, we have achieved our most ambitious business dreams because, as leaders on this industry, on the B&H market and beyond it, we are able to offer the best quality products, proved and accepted by the most demanding customers. We are a team for which every new project is a new challenge and new experience.

Please trust us, and be sure that we will justify your trust.

May our Alternativa be your best solution!

Salih Lemeš, General Manager

About Alternativa

Alternativa d.o.o. Sarajevo was founded in February 1997 and operates as a Limited Liability Company for production, trade and services. Production of thermal insulation panels, rollformed plates and municipal equipment make the major part of its operation.

As a market leader in the industry of plate rollforming, Alternativa d.o.o. Sarajevo introduces high market standards in respect of raw materials and equipment used for production. Constant investments in our equipment and permanent training of our staff made Alternativa d.o.o. Sarajevo the absolute leader in production of thermal insulation panels, rollformed plates and associated roof and facade elements in this part of Europe. Protection system of the plates we offer guarantees long-year solidity of plates, attractive appearance and resistance of color to ultraviolet radiation. Long lifetime of our plates of minimum 50 years ensure immaculate functioning of your roof or facade.

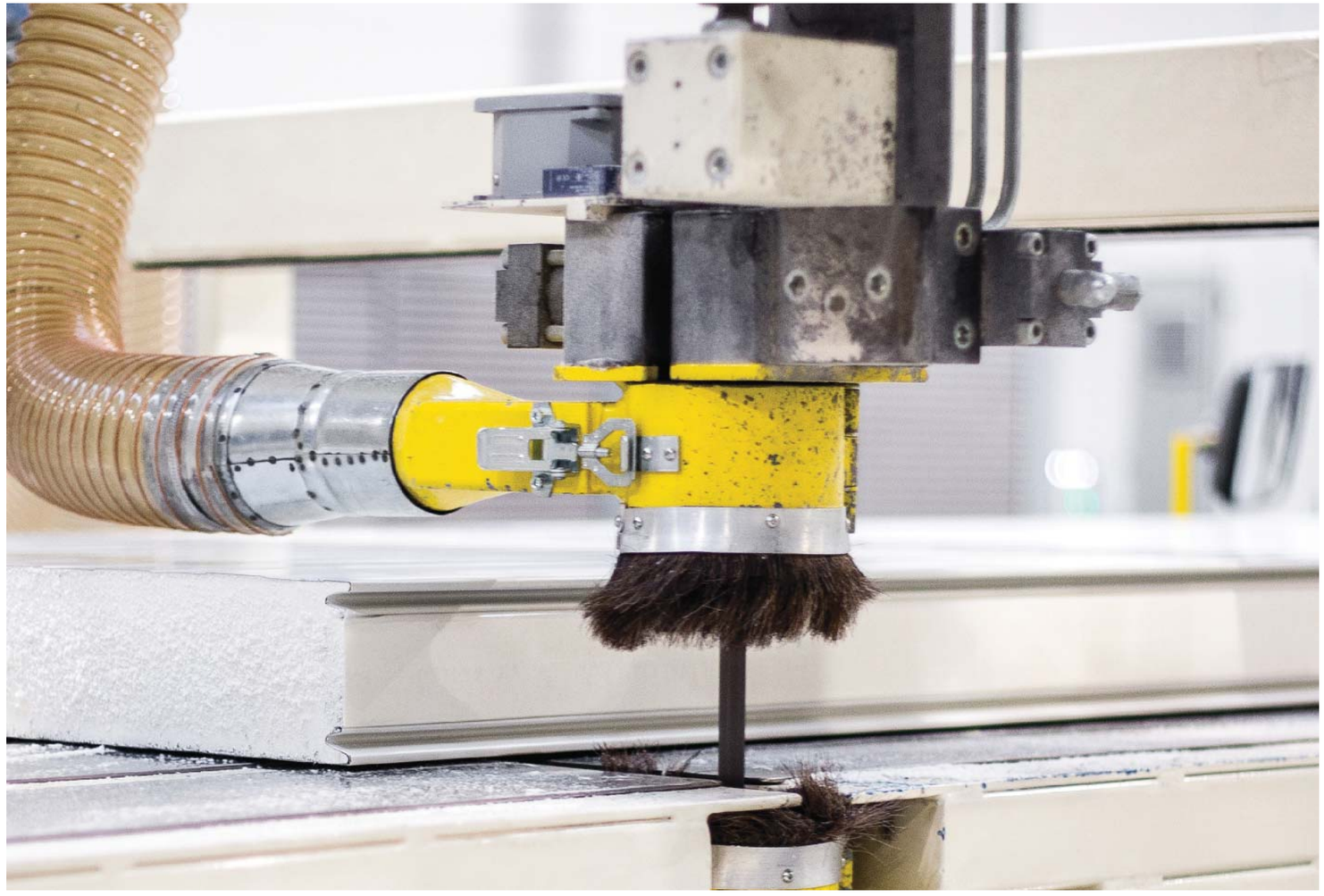
Our product and equipment range

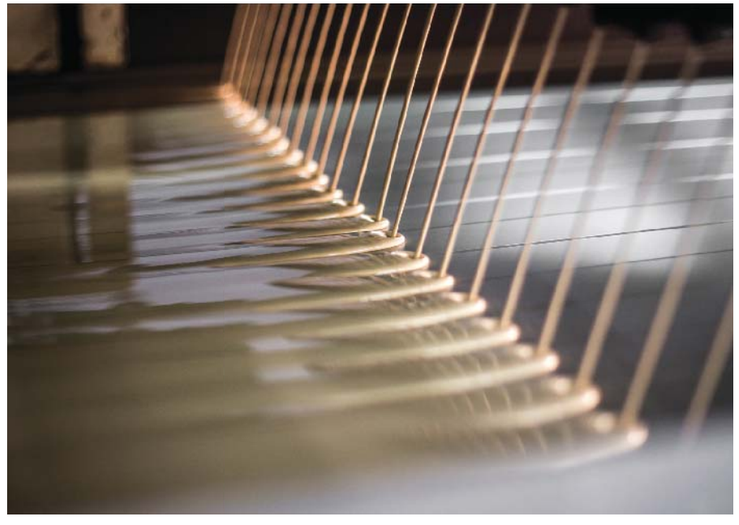
During its development in the last 20 years, Alternativa developed in several segment of operation, consisting from groups of products and equipment that are briefly described below:

Continuous line for production thermal insulation panels with PUR, PIR and mineral wool filling

The line is more than 240 m long, with four automatic decoilers, rollforming machines for roof, wall and refrigeration panels, filling and forming unit, horizontal and vertical cooling system, and automatic packing system.

The complete system is in conformance with EN 14509:2014, guaranteeing traceability and quality of the final product.





Production complex for automatic rollforming of single plates includes:

Five lines for roof tile plates

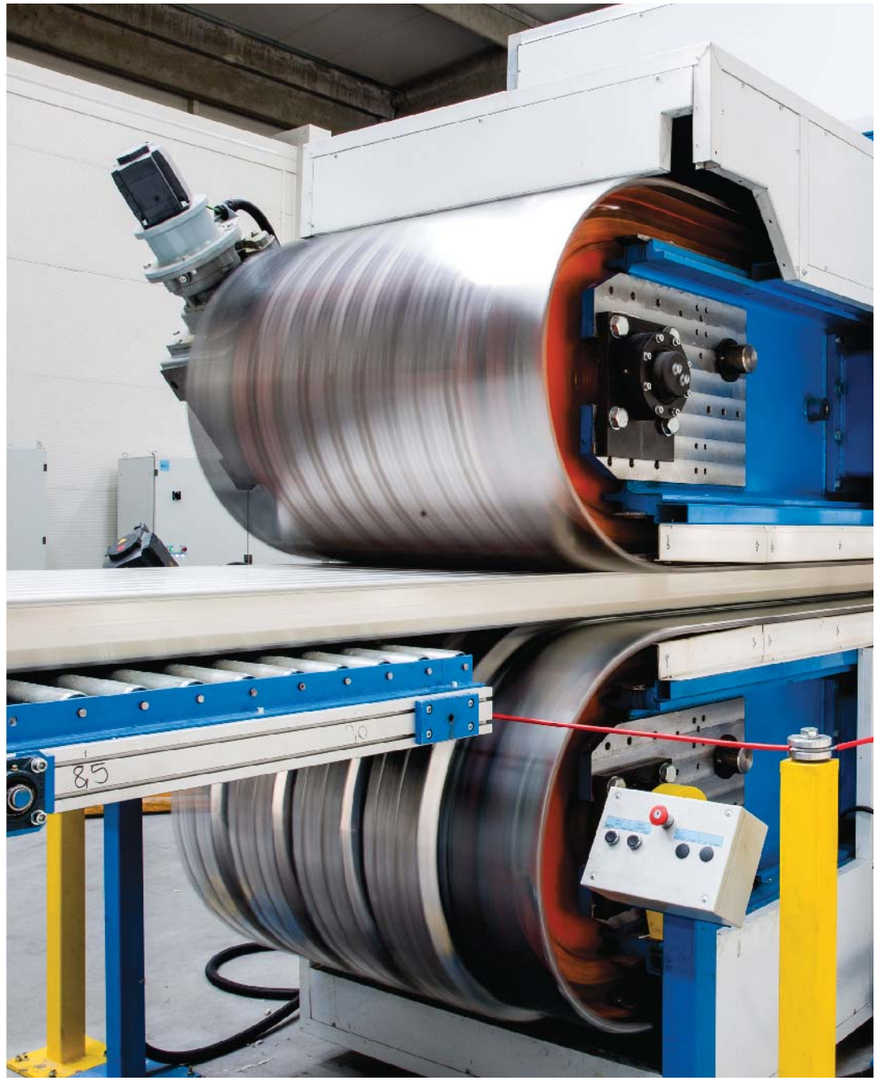
Six lines for trapeze plates

Two lines for sinusoid plates

Four lines for self-fitting and shallow rollformed plates

Seven lines for production of downpipes and horizontal spouts

Line for production of fences from plate profiles



Production unit for accessories

Line for production of wind fillets

Four CNC bending machines

Thirty-two hydraulic and eccentric presses, with 25 - 200 ton capacities

Four automatic slitters for longitudinal and horizontal slitting of 0.40 to 3.00 mm thick plates

Electrostatic metal plasticization line

Two thermal shrinking packing units

Production unit for structure elements

C beams rollforming line

Z beam rollforming line

Vineyard (garden) pillar production line

Production unit for municipal containers and tools

Hydraulic press 350 tons

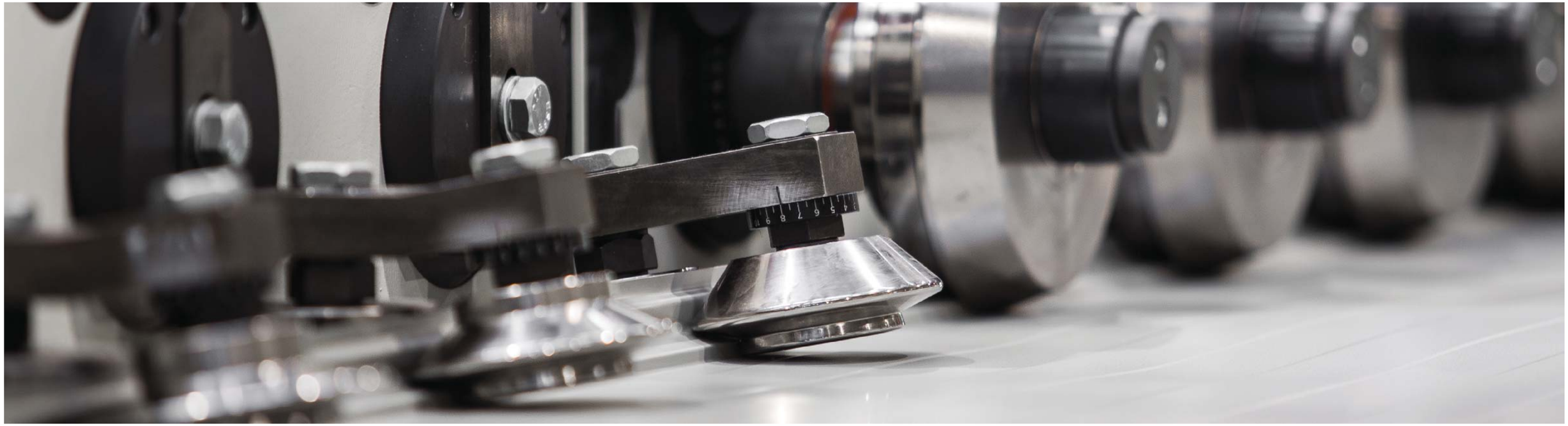
Two CNC cutters for cutting of plates up to 3 m long

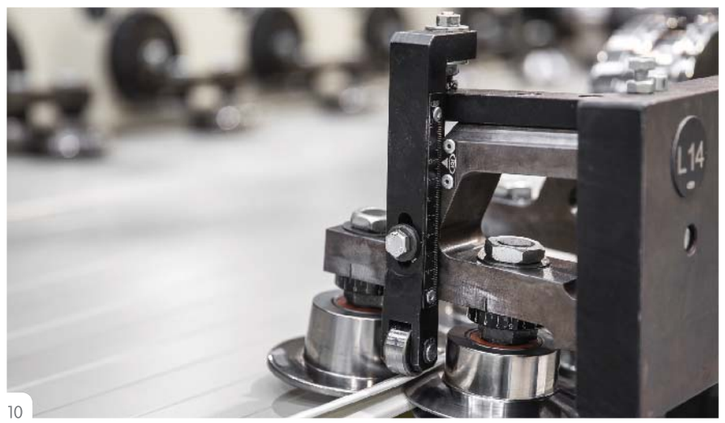
Two bending presses with cutters for up to 6 mm thick plates

Horizontal and vertical CNC nibbling machine

Erosimate for metal and plasma cutting

Grinding machines for flat grinding





Production unit for dry construction elements

Line for production of CD and UD profiles

Line for production of CW and UW profiles

Tools for production of hanging and associated elements for dry construction system

Complete production complex occupies over 30,000 sq.m of indoor and 12,000 sq.m of outdoor area. All facilities are equipped with total of 12 15-ton capacity cranes and other horizontal and vertical transport mechanization.

Product quality and safety

Alternativa d.o.o. has implemented ISO 9001:2008 Quality Management System in cooperation with German company TÜV Bayern, one of leading global certification organizations. The system has been in operation since 2005 and guarantees our customers that products and services provided by our Company will always be in accordance with their requirements, orders and standards. Quality of our products has been rewarded with numerous recognitions of renowned institutions. All raw materials used in our production are resourced from global manufacturers, which, in conjunction with high quality production equipment and permanent quality control, guarantees premium quality of our product for all our customers.


alternativa
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Topterm

Thermal insulation panels with polyurethane insulation filling take a significant place in the world of modern construction. They feature excellent thermal and sound insulation, high load carrying capacity, fast assembling and long lifetime. The panels consist from two rollformed plates and thermal insulation filling which can be mineral wool or polyurethane.
The polyurethane filling panels can be manufactured in PUR and PIR filling variants resistant to fire up to 60 minutes. That are manufactured in the thickness range from 30 to 200 mm.

The inflammable mineral wool filling panels of class A are intended for construction of facilities where high fire resistance standards are required. That are manufactured in thicknesses from 50 to 250 mm.
Besides standards, customers have choice of other plate thicknesses, as well as wide range of colors.
All panels are manufactured in dimensions ordered by customers 3-16 m long.
Manufacturing is performed on sophisticated equipment of renowned European manufacturers, as well as the best quality raw materials, which results in the top quality product.
Thermal insulation plates provide wide specter of possibilities in designing of architectural solutions for all kinds of facilities.

Topterm KP

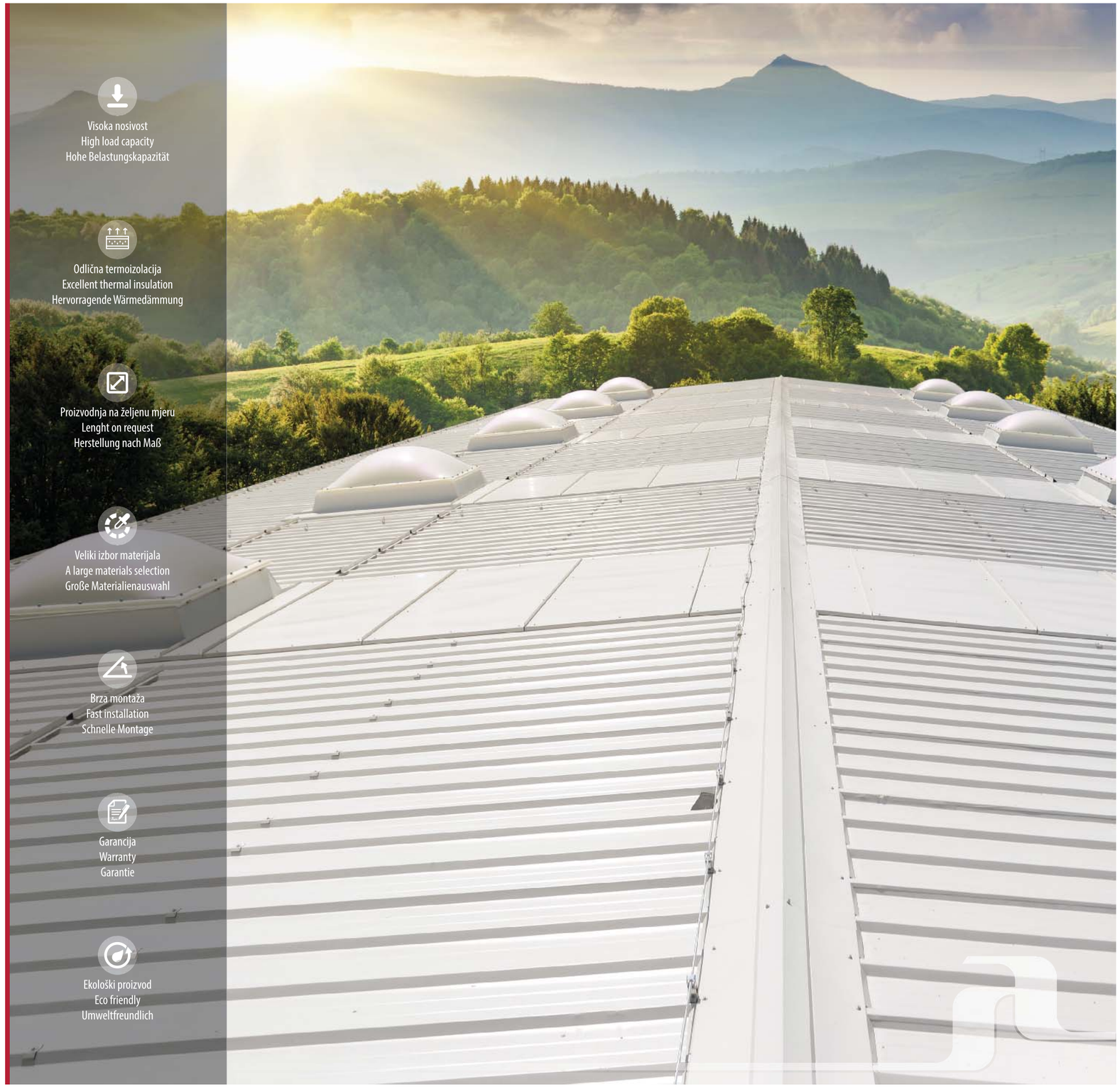
Roof sandwich panel

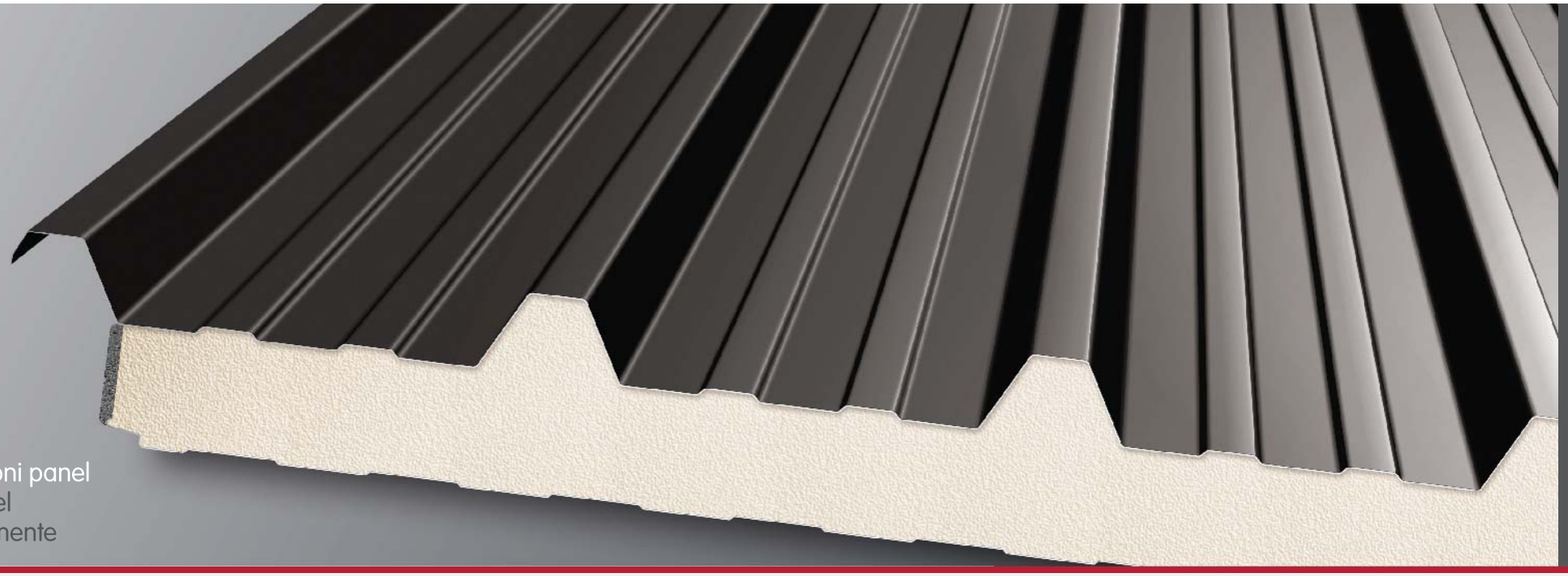
Roof thermal insulation panels consist from two rollformed plates and polyurethane filling, and have excellent thermal insulation properties regardless of PUR of PIR filling.

The external panel side is trapeze rollformed plate with 5 ribs and reinforcements, providing high load carrying capacity of the roof panel. The internal side is commonly produced by linear rollforming, but it can be also manufactured with micro rollforming, or as a flat profile, according to special customer's requirements. The minimum roof panel gradient is 5° or less, if special conditions are met.

Customers can also order roof panels with overhanging upper trapezoid plate, where protective strip is applied to overhanging section in production for easier cleaning of polyurethane filling. Length of the overhang is in accordance with customer's requirement, from 70 to 300 mm.

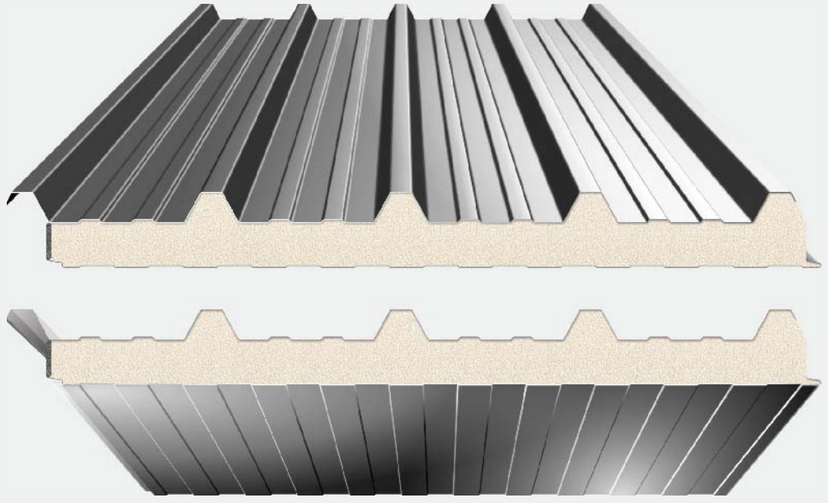
The roof panels are manufactured in thicknesses from 30 to 150 mm, with customer choosing color and thickness of plates.



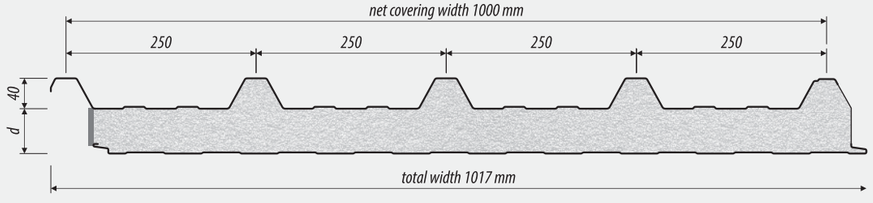


Krovni termoizolacioni panel
Roof sandwich panel
Sandwich-Dachelemente

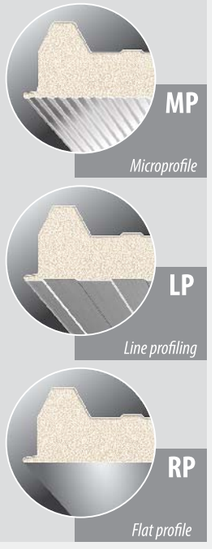
Topterm KP



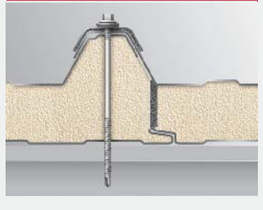
PUR PIR



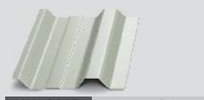
Profiling profiles



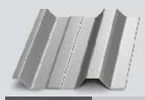
Topterm KP panels connection detail



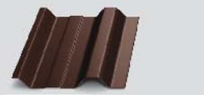
Standard colors
for Topterm KP panels



RAL 9002 *Gray white*

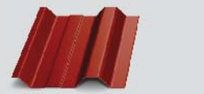


RAL 9006 *Silver*



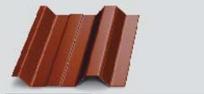
RAL 8019 *Dark brown*

RAL 7016 *Anthracit*



RAL 3009 *Dark red*

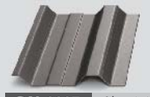
RAL 6028 *Dark green*



RAL 8004 *Copper brown*

RAL 5010 *Middle blue*

RAL 3000 *Red*



RAL 9007 *Aluminium gray*

Other colors according to the request

**The colors in the print are approximate to the color map*

Topterm KP	*Carrier system* P_{max} ▲ L ▲										
	Panel thickness (mm)	*maximum load (kg/m^2)*	*Distance of the support "L" (m^1)*									*Panel weight (kg/m^2)*
			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	
Outer steel sheet pb. d=0.50 mm	30	P_{max}=	321	227	127	82	51						9.59
Internal steel sheet pb. d=0.40 mm	40	P_{max}=	360	239	159	118	85	66					9.99
	50	P_{max}=	402	268	194	139	105	80	56				10.39
	60	P_{max}=	432	322	233	169	127	99	78	57			10.79
	80	P_{max}=	566	412	309	233	170	140	107	78	64		11.59
Width of the support 120 mm	100	P_{max}=	694	506	380	303	234	176	146	112	93	70	12.39
	120	P_{max}=	828	625	490	373	292	227	194	155	122	99	13.19
	150	P_{max}=	1027	764	607	490	379	303	245	198	165	140	14.39

Topterm KP	*Carrier system* P_{max} ▲ L ▲ L ▲ L ▲										
	Panel thickness (mm)	*maximum load (kg/m^2)*	*Distance of the support "L" (m^1)*									*Panel weight (kg/m^2)*
			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	
Outer steel sheet pb. d=0.50 mm	30	P_{max}=	362	283	191	102	67						9.59
Internal steel sheet pb. d=0.40 mm	40	P_{max}=	419	289	207	130	98	81					9.99
	50	P_{max}=	456	332	232	166	127	98	73	54			10.39
	60	P_{max}=	536	398	294	210	169	129	87	71	55		10.79
	80	P_{max}=	702	521	383	289	224	174	138	102	72	57	11.59
Width of the support 120 mm	100	P_{max}=	861	644	504	376	289	232	181	151	115	87	12.39
	120	P_{max}=	1027	766	636	463	362	283	232	187	151	123	13.19
	150	P_{max}=	1272	947	779	593	470	376	304	246	210	174	14.39

*Static sizing calculation performed in accordance with **EN 14509 standard***
Normal deflection limit l/200

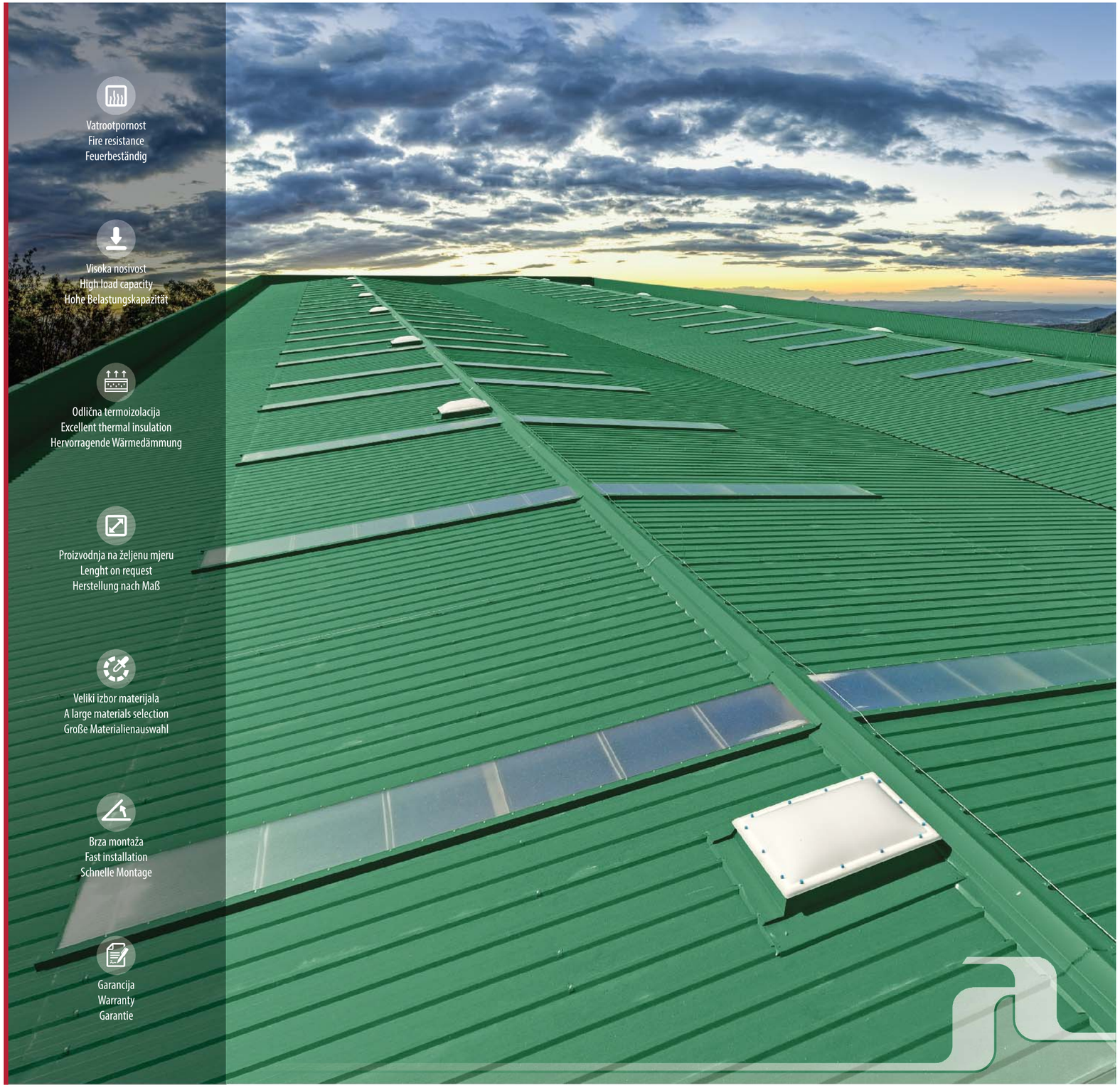
Topterm KP	*Coefficient of heat transfer*								
	Panel thickness (mm)	30	40	50	60	80	100	120	150
	W/m^2K	0.71	0.55	0.44	0.37	0.28	0.22	0.19	0.15
	$Kcal/m^2h°C$	0.61	0.47	0.38	0.32	0.24	0.18	0.16	0.13

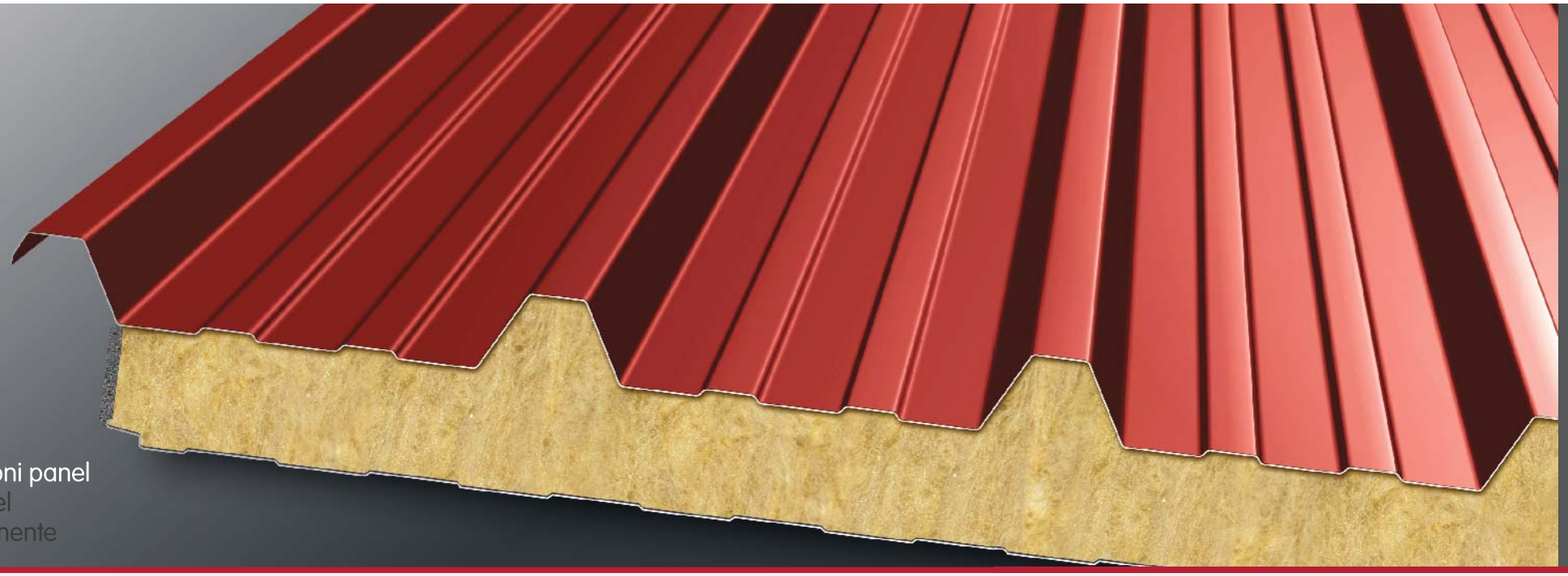
Topterm KPmw

Roof sandwich panel

Roof thermal insulation panels with mineral wool filling are especially suitable for facilities where fire resistance is required. They consist from two rollformed plates and structural insulation from inflammable class A multilayer mineral wool. All three layers make composite construction product with excellent thermal insulation properties. The panels are produced on continuous production line where each stage is monitored by a software and laboratory controlled.

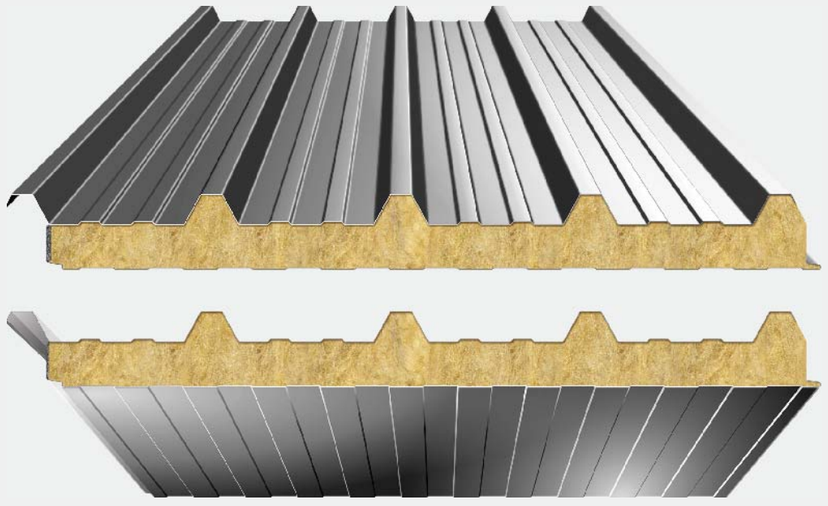
Topterm KPmw roof panels are produced on the following thicknesses: 50, 60, 80, 100, 120, 150, 180, and 200 mm.
Customers have wide choice of plate thicknesses and colors.

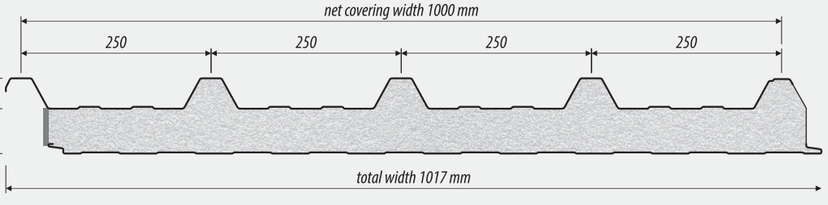




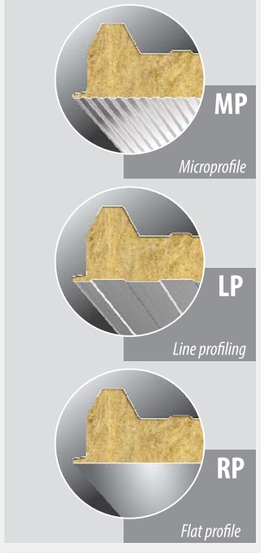
Krovni termoizolacioni panel
Roof sandwich panel
Sandwich-Dachelemente

Topterm KPmw

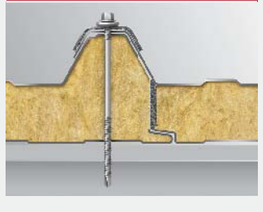




Profiling profiles



Topterm KPmw panels connection detail



Standard colors
for Topterm KPmw panels


RAL 9002 Gray white


RAL 9006 Silver


RAL 8019 Dark brown


RAL 7016 Anthracit


RAL 3009 Dark red


RAL 6028 Dark green


RAL 8004 Copper brown


RAL 5010 Middle blue


RAL 3000 Red


RAL 9007 Aluminium gray

Other colors according to the request

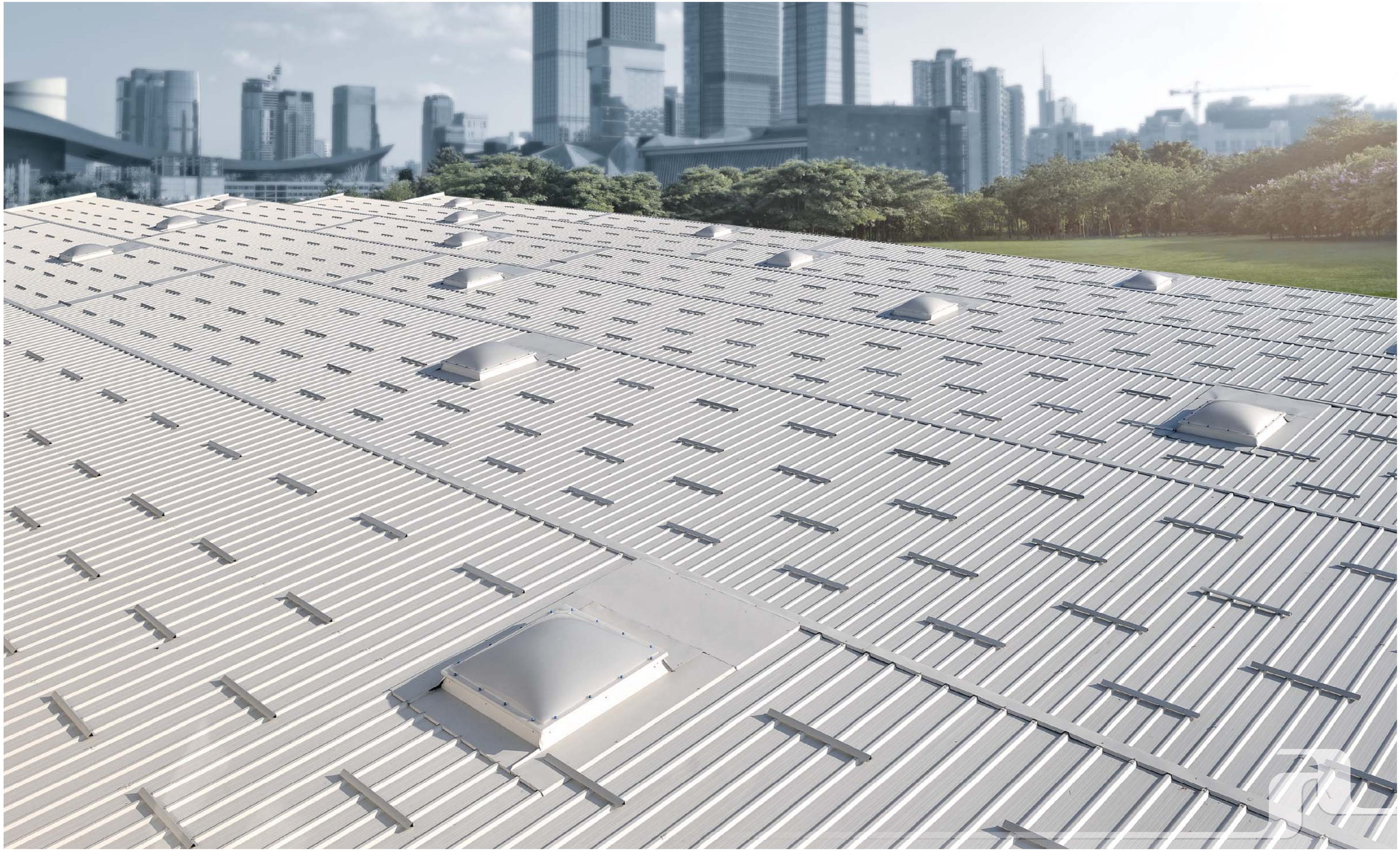
**The colors in the print are approximate to the color map*

Topterm KPmw	Carrier system Pmax											
	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m)										Panel weight (kg/m²)
			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	
Outer steel sheet pb. d=0.50 mm Internal steel sheet pb. d=0.40 mm Width of the support 120 mm	50	Pmax=	319	248	177	124	83						14.74
	60	Pmax=	366	295	201	148	94	61					15.84
	80	Pmax=	413	342	260	195	148	106	77				18.04
	100	Pmax=	460	389	307	242	189	142	95	66			20.24
	120	Pmax=	507	437	354	289	218	165	130	100	73		22.44
	150	Pmax=	532	460	372	307	230	177	136	106	95	71	25.74
	180	Pmax=	555	478	389	325	242	183	153	112	100	83	29.04
	200	Pmax=	572	496	401	336	248	189	148	119	106	89	31.24
	250	Pmax=	596	518	421	354	263	203	160	129	114	95	36.74

Topterm KPmw	Carrier system Pmax											
	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m)										Panel weight (kg/m²)
			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	
Outer steel sheet pb. d=0.50 mm Internal steel sheet pb. d=0.50 mm Width of the support 120 mm	50	Pmax=	335	260	186	130	87						14.74
	60	Pmax=	388	313	213	157	100	65					15.84
	80	Pmax=	442	366	278	209	158	113	82				18.04
	100	Pmax=	497	420	332	261	204	153	103	71			20.24
	120	Pmax=	553	476	386	315	238	180	142	109	80		22.44
	150	Pmax=	580	501	405	335	251	193	148	116	104	77	25.74
	180	Pmax=	611	526	428	358	266	201	168	123	110	91	29.04
	200	Pmax=	629	546	441	370	273	208	163	131	117	98	31.24
	250	Pmax=	662	575	467	393	292	225	178	143	127	105	36.74

*Static sizing calculation performed in accordance with **EN 14509 standard***
Normal deflection limit l/200

Topterm KPmw	Coefficient of heat transfer									
	Panel thickness (mm)	50	60	80	100	120	150	180	200	250
	W/m²K	0.76	0.63	0.47	0.38	0.32	0.25	0.21	0.19	0.15
	Kcal/m²h°C	0.65	0.54	0.40	0.35	0.27	0.21	0.18	0.16	0.12



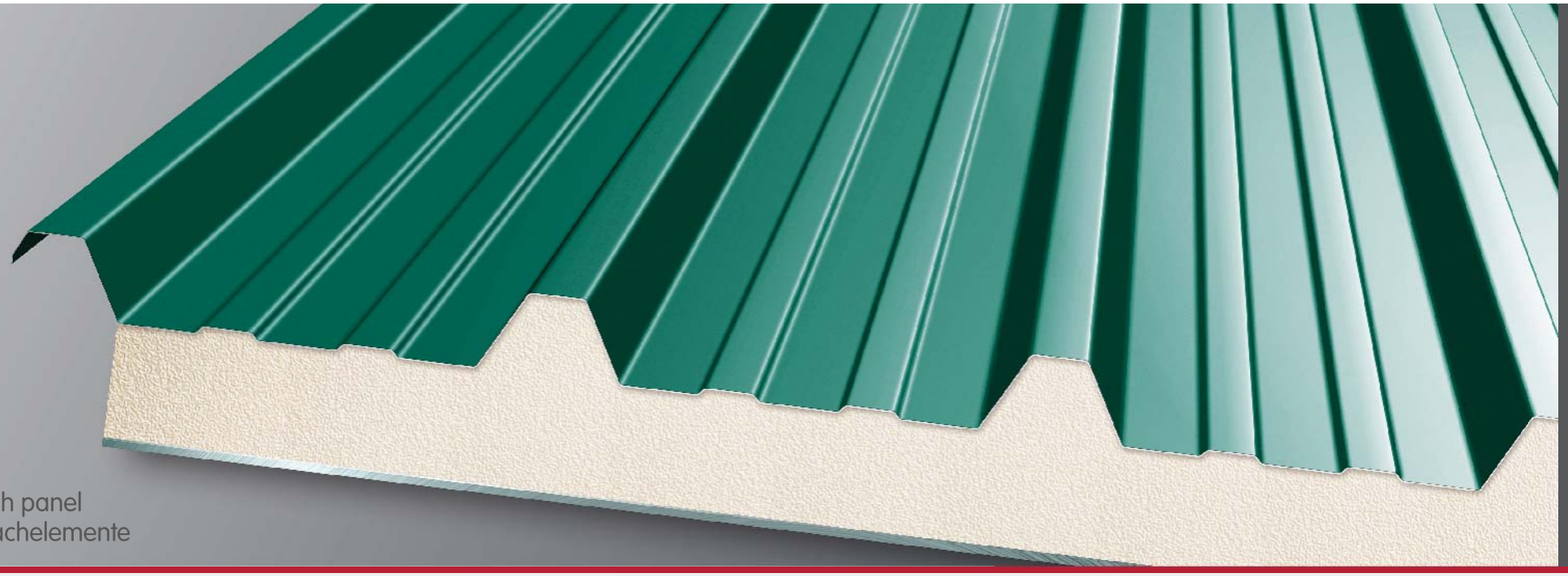
Topterm KP Agro

Roof AGRO snadwich panel

Roof panels for special purpose indoor areas. They are the most commonly used for agro-industry, animal and poultry farms.

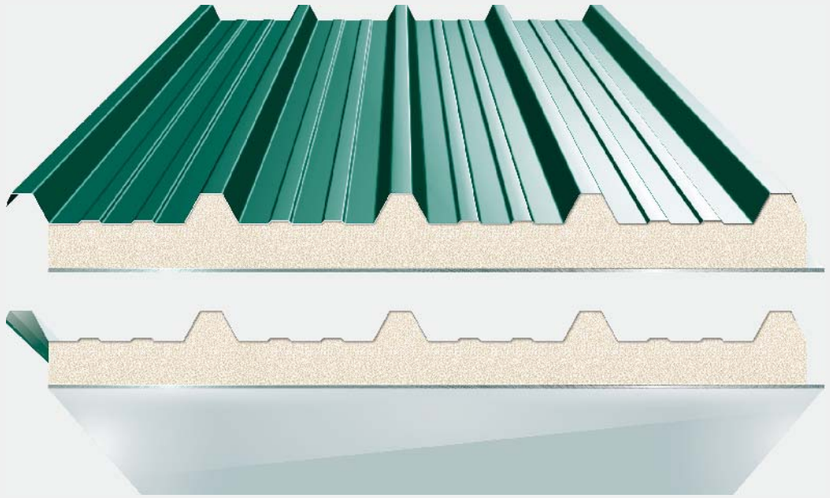
The panels consist from external overlay from steel plasticized plate and internal layer of PRVF material. They are especially designed for cladding of facilities intended for agriculture and stock farming. Internal fiberglass overlay provides the panel with high resistance to the impact of chemicals and bacteria, as well with good abrasion resistance.

They are manufactured in thicknesses of 30, 40, 50, and 60 mm.

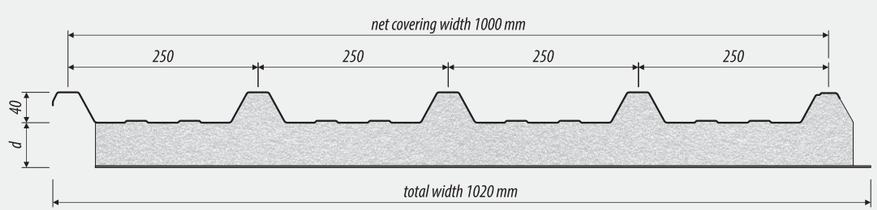


Krovni AGRO panel
Roof AGRO snadwich panel
AGRO-Sandwich-Dachelemente

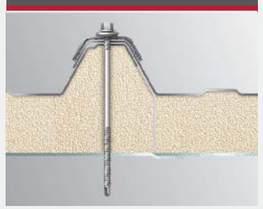
Topterm KP Agro



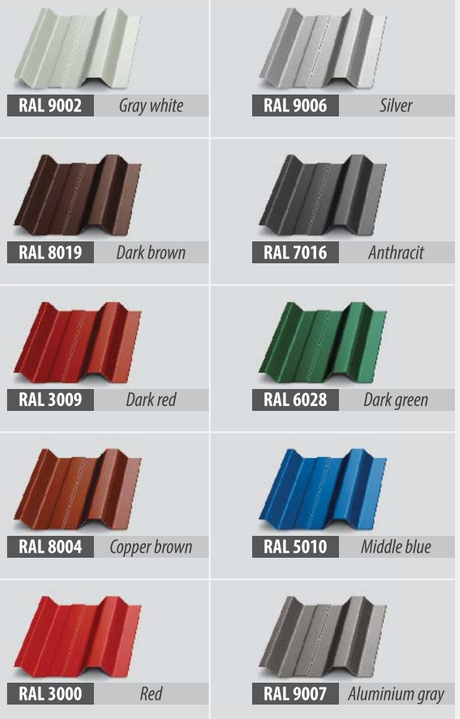
PUR



Topterm KP Agro *panels connection detail*



Standard colors
for Topterm KP Agro panels



RAL 9002	*Gray white*	**RAL 9006**	*Silver*
RAL 8019	*Dark brown*	**RAL 7016**	*Anthracit*
RAL 3009	*Dark red*	**RAL 6028**	*Dark green*
RAL 8004	*Copper brown*	**RAL 5010**	*Middle blue*
RAL 3000	*Red*	**RAL 9007**	*Aluminium gray*

Other colors according to the request

**The colors in the print are approximate to the color map*

Topterm KP Agro	Carrier system (Pmax, L)										
	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m)								Panel weight (kg/m²)
			1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	
Outer steel sheet pb. d=0.50 mm	0.40	Pmax=	480	306	211	151	100	69	49			6.40
Internal steel sheet pb. d=0.40 mm	0.45	Pmax=	542	345	238	170	112	78	55			6.90
	0.50	Pmax=	601	383	265	189	125	86	62	45		7.40
Width of the support 120 mm	0.55	Pmax=	661	421	291	208	137	95	68	49	37	7.90
	0.60	Pmax=	720	459	317	227	150	104	74	54	40	8.40
	0.70	Pmax=	838	534	370	265	175	121	86	63	47	9.40

Topterm KP Agro	Carrier system (Pmax, L)										
	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m)								Panel weight (kg/m²)
			1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	
Outer steel sheet	0.40	Pmax=	560	357	247	180	137	107	86	71	59	6.40
Internal steel sheet PRVF material	0.45	Pmax=	633	403	279	204	155	121	97	80	66	6.90
	0.50	Pmax=	702	448	309	226	172	135	108	89	74	7.40
Width of the support 120 mm	0.55	Pmax=	772	492	340	248	189	148	119	97	81	7.90
	0.60	Pmax=	841	536	370	271	206	161	130	106	88	8.40
	0.70	Pmax=	979	624	432	316	240	188	151	124	103	9.40

Static sizing calculation performed in accordance with ***EN 14509 standard***
Normal deflection limit l/200

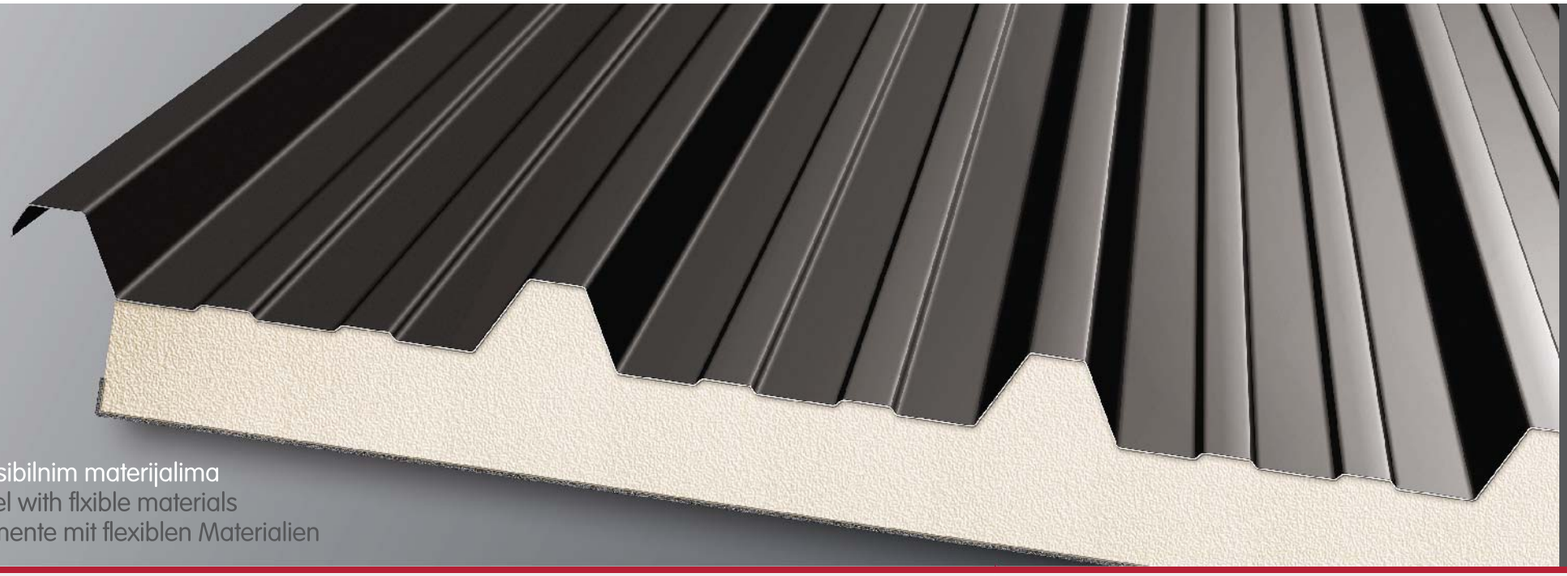
Topterm KP Agro	Coefficient of heat transfer				
	Panel thickness (mm)	30	40	50	60
	W/m²K	0.71	0.55	0.44	0.37
	Kcal/m²h°C	0.61	0.47	0.38	0.32

Topterm KP Flex

Roof sandwich panel with flxible materials

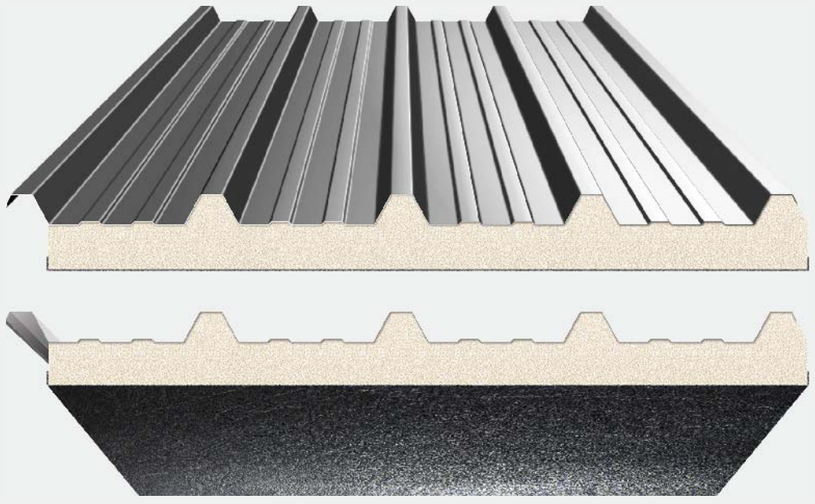
Roof panels with trapeze rollformed plate on one side, and some of flexible materials on the other, i.e. bituminized or aluminum foil. They have wide applicability in wood structured roofs, where installation of these plates solve both insulation and roofing of the building. They can be used also as ceiling profiles where thermal insulation and easy maintenance are required.

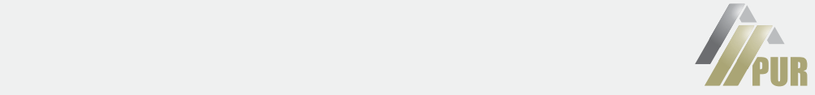
That are manufactured in thicknesses of 30, 40, 50, and 60 mm.

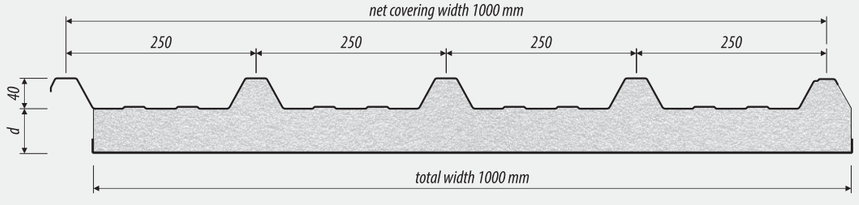


Krovni panel sa fleksibilnim materijalima
Roof sandwich panel with flxible materials
Sandwich-Dachelemente mit flexiblen Materialien

Topterm KP Flex

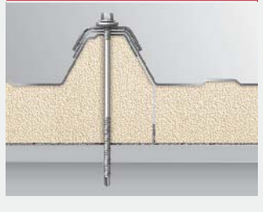






Profiling profiles

Topterm KP Flex panels connection detail



Standard colors
for Topterm KP Flex panels


RAL 9002 Gray white


RAL 9006 Silver


RAL 8019 Dark brown


RAL 7016 Anthracit


RAL 3009 Dark red


RAL 6028 Dark green


RAL 8004 Copper brown


RAL 5010 Middle blue


RAL 3000 Red


RAL 9007 Aluminium gray

Other colors according to the request

**The colors in the print are approximate to the color map*

Topterm KP Flex	Carrier system (Pmax, L)										Panel weight (kg/m²)
Outer steel sheet pb. d=0.50 mm	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m)								
			1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00
Internal steel sheet pb. d=0.40 mm	0.40	Pmax=	480	306	211	151	100	69	49			6.40
	0.45	Pmax=	542	345	238	170	112	78	55			6.90
	0.50	Pmax=	601	383	265	189	125	86	62	45		7.40
Width of the support 120 mm	0.55	Pmax=	661	421	291	208	137	95	68	49	37	7.90
	0.60	Pmax=	720	459	317	227	150	104	74	54	40	8.40
	0.70	Pmax=	838	534	370	265	175	121	86	63	47	9.40

Topterm KP Flex	Carrier system (Pmax, L)										Panel weight (kg/m²)
Outer steel sheet	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m)								
			1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00
Internal steel sheet PRVF material	0.40	Pmax=	560	357	247	180	137	107	86	71	59	6.40
	0.45	Pmax=	633	403	279	204	155	121	97	80	66	6.90
	0.50	Pmax=	702	448	309	226	172	135	108	89	74	7.40
Width of the support 120 mm	0.55	Pmax=	772	492	340	248	189	148	119	97	81	7.90
	0.60	Pmax=	841	536	370	271	206	161	130	106	88	8.40
	0.70	Pmax=	979	624	432	316	240	188	151	124	103	9.40

*Static sizing calculation performed in accordance with **EN 14509 standard***
Normal deflection limit l/200

Topterm KP Flex	Coefficient of heat transfer				
	Panel thickness (mm)	30	40	50	60
	W/m²K	0.71	0.55	0.44	0.37
	Kcal/m²h°C	0.61	0.47	0.38	0.32

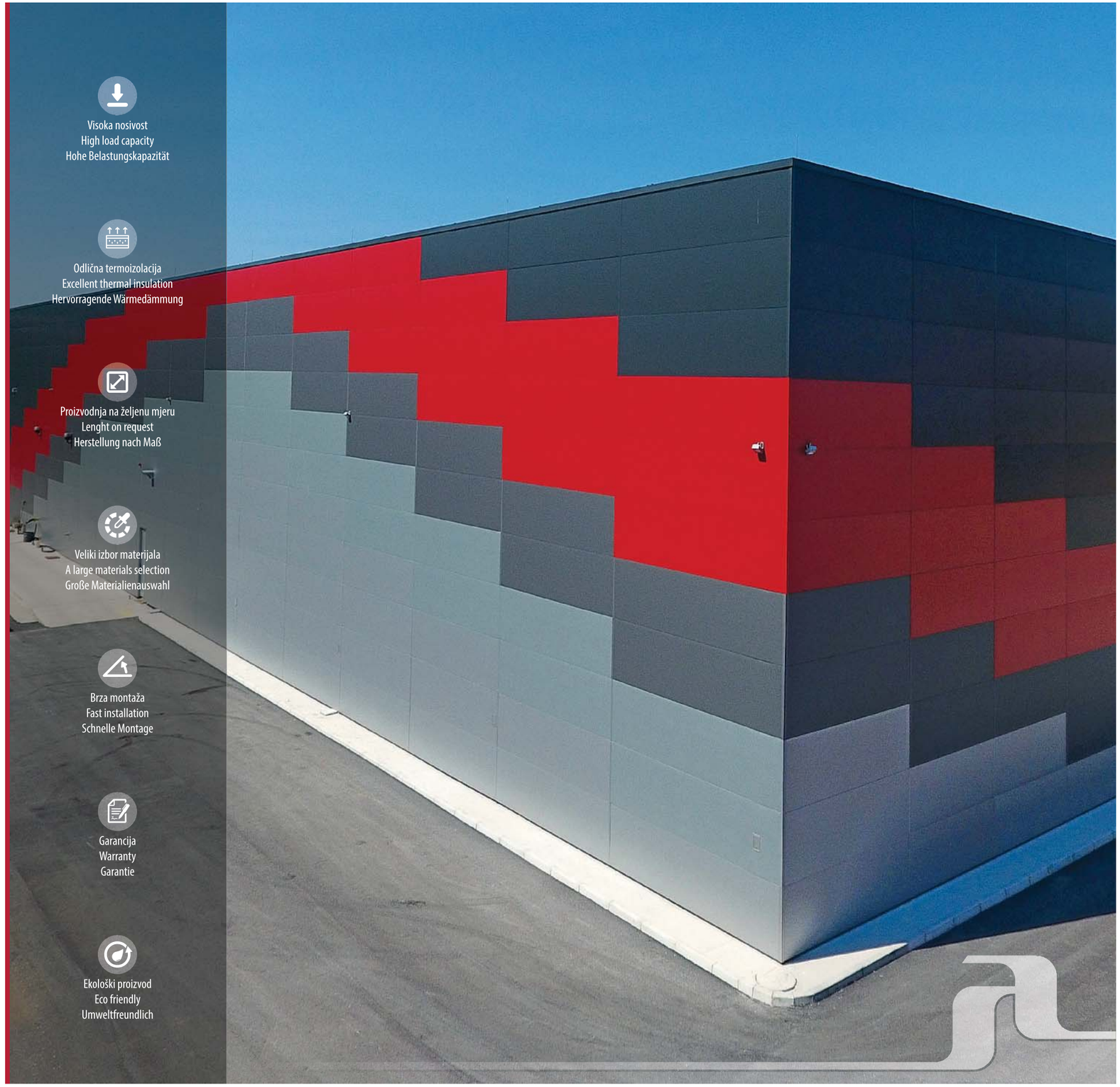
Topterm FP

Wall sandwich panel with hidden fixing

Wall panels with hidden screw consist from two rollformed plates and polyurethane filling. They are the most commonly used for cladding of commercial and industrial buildings.

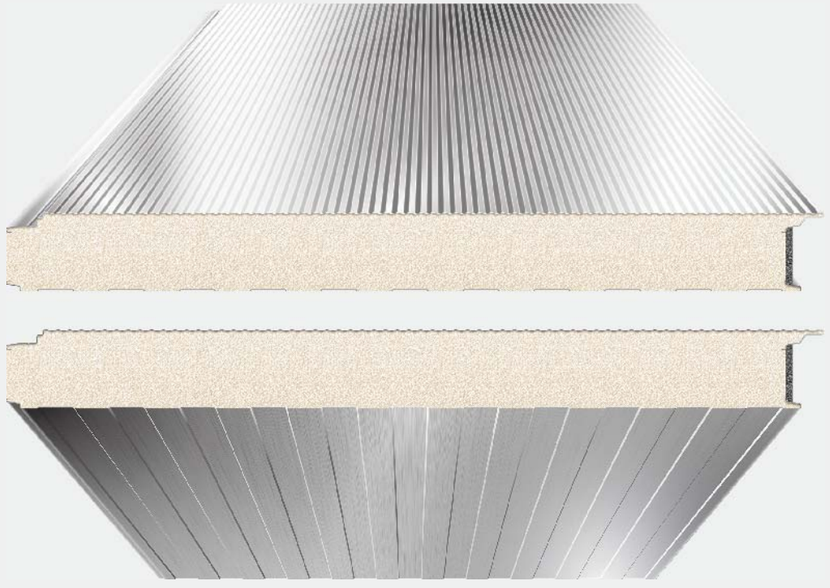
They are manufactured in three rollforming variants: microprofiles, linear and flat rollforming with PUR and PIR filling.
Standard panel width is 100 cm, but they can be also 60 cm wide, which is especially attractive when external flat profile with wood decor is chosen.

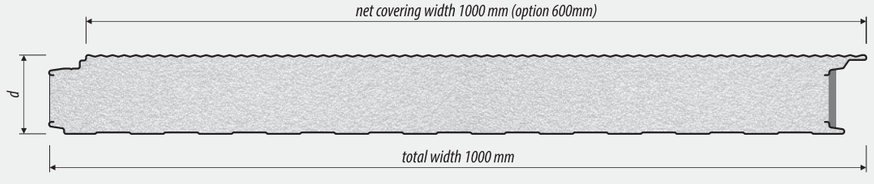
Facade panels can be 50, 60, 80, 100, and 120 mm thick.
With selection of suitable colors or type of rollforming, extraordinary esthetic effects can be achieved implementing the designed architectural solution.



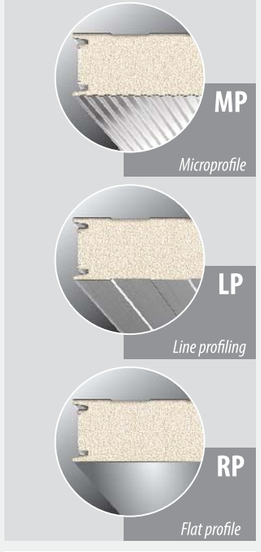
Zidni panel sa skrivenim vijkom
Wall sandwich panel with hidden fixing
Wandpaneele mit versteckten Schrauben

Topterm FP





Profiling profiles



Topterm FP panels connection detail

Standard colors
for Topterm FP panels

Other colors according to the request

**The colors in the print are approximate to the color map*

Topterm FP	*Carrier system* Pmax										
	Panel thickness (mm)	*maximum load (kg/m²)*	*Distance of the support "L" (m)*									*Panel weight (kg/m²)*
			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	
Outer steel sheet pb. d=0.50 mm	30	Pmax=	241	162	102	63							9.12
Internal steel sheet pb. d=0.40 mm	40	Pmax=	272	185	135	95	68						9.52
	50	Pmax=	321	224	171	135	86	58					9.92
	60	Pmax=	383	273	212	165	121	89	63				10.32
Width of the support 120 mm	80	Pmax=	495	359	288	224	162	121	94	62			11.12
	100	Pmax=	608	453	359	282	203	157	122	93	61		11.92
	120	Pmax=	732	547	435	341	249	191	151	121	95	76	12.72

Topterm FP	*Carrier system* Pmax										
	Panel thickness (mm)	*maximum load (kg/m²)*	*Distance of the support "L" (m)*									*Panel weight (kg/m²)*
			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	
Outer steel sheet pb. d=0.50 mm	30	Pmax=	205	130	108	81	55						9.12
Internal steel sheet pb. d=0.40 mm	40	Pmax=	230	148	118	98	83	71					9.52
	50	Pmax=	289	189	148	127	106	89	71				9.92
	60	Pmax=	348	230	183	155	130	100	83	65			10.32
Width of the support 120 mm	80	Pmax=	466	313	248	198	159	124	100	83	71		11.12
	100	Pmax=	584	395	313	242	189	148	124	100	89	74	11.92
	120	Pmax=	708	495	372	298	222	171	142	118	100	89	12.72

*Static sizing calculation performed in accordance with **EN 14509 standard***
Normal deflection limit l/200

Topterm FP	*Coefficient of heat transfer*						
	Panel thickness (mm)	40	50	60	80	100	120
	W/m²K	0.55	0.44	0.37	0.28	0.22	0.19
	Kcal/m²h°C	0.47	0.38	0.38	0.24	0.18	0.16

Topterm FPmw

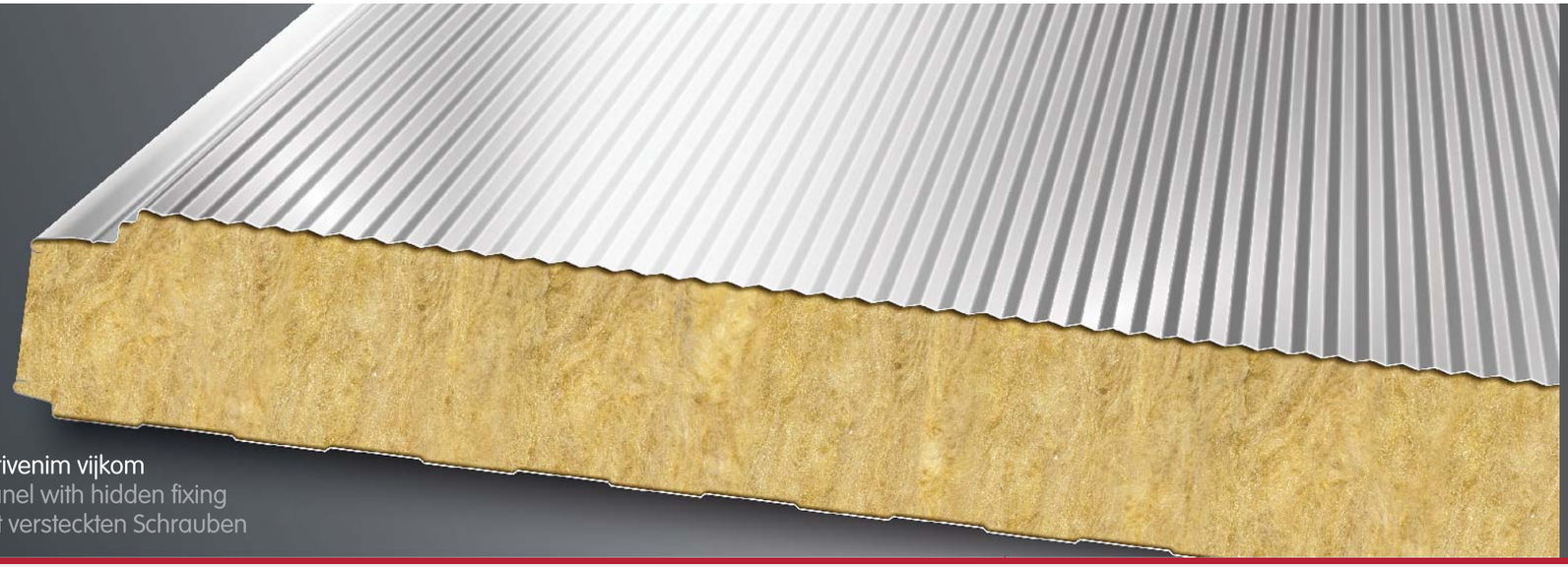
Wall sandwich panel with hidden fixing

Topterm FPmw wall panels with hidden screws consist from two rollformed plates and inflammable multilayer mineral wool class A1 filling.

They are used for facilities that have to satisfy high demands for fireproofness, which are the most commonly building with high concentration of people like shopping malls, healthcare complexes of sports facilities.

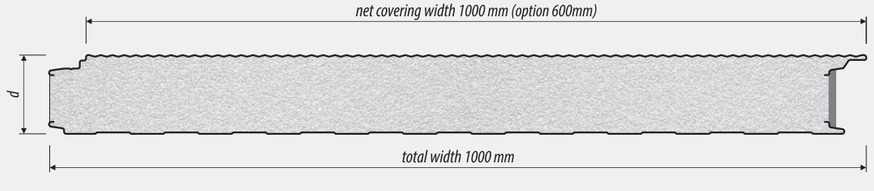
The panels can be 50, 60, 80, 100, 120, 150, 180, and 200 mm wide.
Standard width of panels is 100 cm, and lengths are in accordance with customers'' requirements, from 3 to 16 m. The panels can be installed horizontally or vertically.

Customers can choose from wide specter of colors and three rollforming variants.

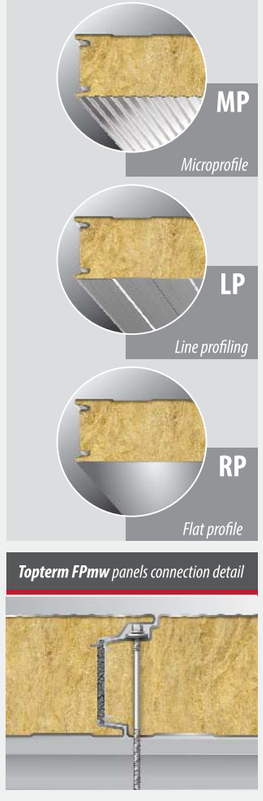


Zidni panel sa skrivenim vijkom
Wall sandwich panel with hidden fixing
Wandpaneele mit versteckten Schrauben

Topterm FPmw



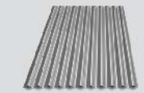
Profiling profiles



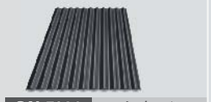
Topterm FPmw panels connection detail

Standard colors
for Topterm FP panels

RAL 9002 Gray white

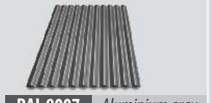


RAL 9006 Silver



RAL 7016 Anthracit

RAL 3000 Red



RAL 9007 Aluminium gray

RAL 5010 Middle blue

RAL 1019 Gray beige

RAL 1023 Yellow

RAL 2004 Orange

RAL 6017 Yellow green

Other colors according to the request

*The colors in the print are approximate to the color map

Topterm FPmw	Carrier system Pmax L											Panel weight (kg/m²)
	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m)									
			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	
Outer steel sheet pb. d=0.50 mm	50	Pmax=	218	153	130	96	86						14.30
Internal steel sheet pb. d=0.50 mm	60	Pmax=	251	177	150	110	99	80					15.40
	80	Pmax=	314	217	186	137	124	100	77				17.60
	100	Pmax=	376	264	224	165	149	120	92	72			19.80
Width of the support 120 mm	120	Pmax=	445	313	264	195	176	142	109	85	59		22.00
	150	Pmax=	498	349	296	218	196	159	121	96	66	53	25.30
	180	Pmax=	548	385	304	240	216	175	133	105	73	59	28.60
	200	Pmax=	592	415	351	258	234	189	144	113	79	63	30.80

Topterm FPmw	Carrier system Pmax L L L											Panel weight (kg/m²)
	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m)									
			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	
Outer steel sheet pb. d=0.50 mm	50	Pmax=	230	165	142	109	88	74					14.30
Internal steel sheet pb. d=0.50 mm	60	Pmax=	264	190	163	125	106	92	79				15.40
	80	Pmax=	303	237	204	156	132	116	89	72			17.60
	100	Pmax=	396	286	244	188	169	138	106	84	63		19.80
	120	Pmax=	468	336	288	221	199	163	125	99	70	55	22.00
	150	Pmax=	525	376	323	248	223	183	140	111	78	65	25.30
Width of the support 120 mm	180	Pmax=	577	414	355	273	245	200	155	122	86	72	28.60
	200	Pmax=	623	447	384	294	266	217	166	131	93	77	30.80

*Static sizing calculation performed in accordance with **EN 14509 standard***
Normal deflection limit l/200

Topterm FPmw	Coefficient of heat transfer								
	Panel thickness (mm)	50	60	80	100	120	150	180	200
	W/m²K	0.76	0.63	0.47	0.38	0.32	0.25	0.21	0.19
	Kcal/m²h°C	0.65	0.54	0.40	0.35	0.27	0.21	0.18	0.16

Topterm ZP

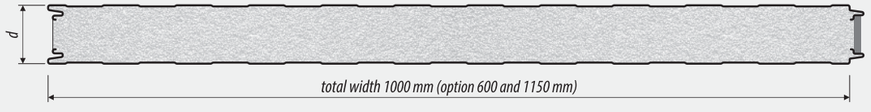
Wall sandwich panel with visible fixing

Wall panels with visible screw and polyurethane filling are manufactured in standard width of 100 cm, but at the customer's request, they can be manufactured 60 and 115 cm wide. 115 cm wide panels are normally used as container panels.

Wall panels can be 30, 40, 50, 60, 80, 100, 120, 150, 180, and 200 mm thick. They are available in three rollforming variants with PUR or PIR filling. All 40 mm thick and thicker panels have double joint.

Zidni panel sa vidljivim vijkom
Wall sandwich panel with visible fixing
Wandpaneele mit sichtbaren Schrauben

Topterm ZP



PUR PIR

Profiling profiles

MP *Microprofile*

LP *Line profiling*

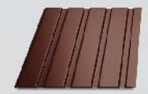
RP *Flat profile*

Topterm ZP panels connection detail

Standard colors
for Topterm ZP panels

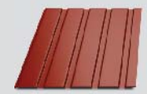
RAL 9002 *Gray white*

RAL 9006 *Silver*

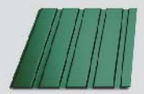


RAL 8019 *Dark brown*

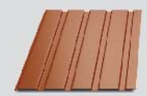
RAL 7016 *Anthracit*



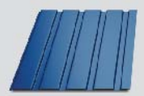
RAL 3009 *Dark red*



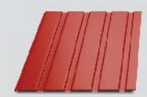
RAL 6028 *Dark green*



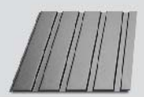
RAL 8004 *Copper brown*



RAL 5010 *Middle blue*



RAL 3000 *Red*



RAL 9007 *Aluminium gray*

Other colors according to the request

**The colors in the print are approximate to the color map*

Topterm ZP		Carrier system (Pmax, L)										
	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m) 1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	Panel weight (kg/m²)
Outer steel sheet pb. d=0.50 mm	30	Pmax=	241	162	102	63							9.12
Internal steel sheet pb. d=0.40 mm	40	Pmax=	272	185	135	95	68						9.52
	50	Pmax=	321	224	171	135	86	58					9.92
	60	Pmax=	383	273	212	165	121	89	63				10.32
	80	Pmax=	495	359	288	224	162	121	94	62			11.12
	100	Pmax=	608	453	359	282	203	157	122	93	61		11.92
	120	Pmax=	732	547	435	341	249	191	151	121	95	76	12.72
Width of the support 120 mm	150	Pmax=	915	683	523	412	313	238	191	147	124	102	13.92
	180	Pmax=	1103	804	646	518	377	298	226	183	158	128	15.12
	200	Pmax=	1175	918	751	577	428	337	269	217	188	158	15.92

Topterm ZP		Carrier system (Pmax, L)										
	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m) 1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	Panel weight (kg/m²)
Outer steel sheet pb. d=0.50 mm	30	Pmax=	205	130	108	81	55						9.12
Internal steel sheet pb. d=0.40 mm	40	Pmax=	230	148	118	98	83	71					9.52
	50	Pmax=	289	189	148	127	106	89	71				9.92
	60	Pmax=	348	230	183	155	130	100	83	65			10.32
	80	Pmax=	466	313	248	198	159	124	100	83	71		11.12
	100	Pmax=	584	395	313	242	189	148	124	100	89	74	11.92
	120	Pmax=	708	495	372	298	222	171	142	118	100	89	12.72
Width of the support 120 mm	150	Pmax=	867	596	455	356	277	211	165	142	118	106	13.92
	180	Pmax=	909	702	535	424	312	256	195	165	142	118	15.12
	200	Pmax=	1003	825	624	473	362	302	225	177	153	130	15.92

*Static sizing calculation performed in accordance with **EN 14509 standard***
Normal deflection limit l/200

Topterm ZP	Coefficient of heat transfer										
	Panel thickness (mm)	30	40	50	60	80	100	120	150	180	200
	W/m²K	0.71	0.55	0.44	0.37	0.28	0.22	0.19	0.15	0.12	0.11
	Kcal/m²h°C	0.61	0.47	0.38	0.32	0.24	0.18	0.16	0.13	0.11	0.10

Topterm ZPmw

Wall sandwich panel with visible fixing

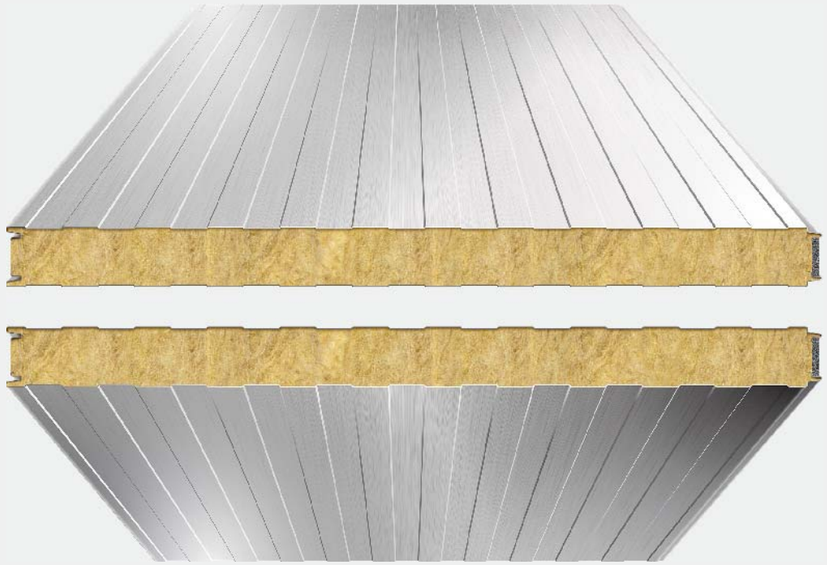
Wall panels with visible screw and inflammable multilayer mineral wool class A are the most commonly used for manufacturing of interior partition walls, cladding of ceilings in industrial facilities, but also as facade panels when fireproofness of facilities is required.

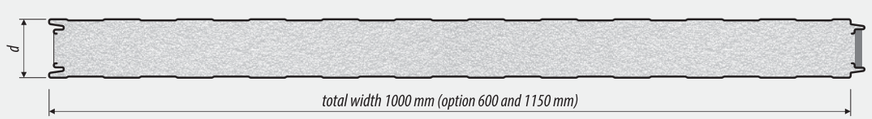
Standard panels are 100 cm wide, but they can also be manufactured 115 cm wide, the most commonly for mobile container facilities. Profiles are cut to lengths in accordance with customers' requirements, from 2.5 to 16 m.

The panels can be 50, 60, 80, 100, 120, 150, 180, 200 and 250 mm thick, and can be in three rollforming variants.

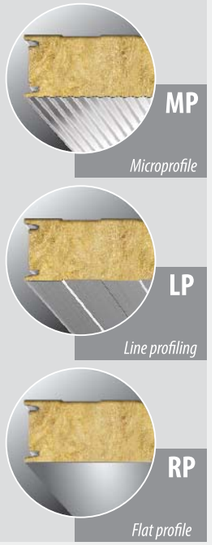
Zidni panel sa vidljivim vijkom
Wall sandwich panel with visible fixing
Wandpaneele mit sichtbaren Schrauben

Topterm ZPmw

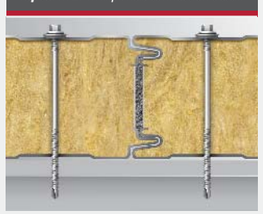




Profiling profiles



Topterm ZPmw panels connection detail



Standard colors
for Topterm ZPmw panels

Other colors according to the request

*The colors in the print are approximate to the color map

Topterm ZPmw	Carrier system Pmax											
	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m)									Panel weight (kg/m²)
			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	
Outer steel sheet pb. d=0.50 mm	50	Pmax=	218	153	130	96	86						14.30
Internal steel sheet pb. d=0.50 mm	60	Pmax=	251	177	150	110	99	80					15.40
	80	Pmax=	314	217	186	137	124	100	77				17.60
	100	Pmax=	376	264	224	165	149	120	92	72			19.80
Width of the support 120 mm	120	Pmax=	445	313	264	195	176	142	109	85	59		22.00
	150	Pmax=	498	349	296	218	196	159	121	96	66	53	25.30
	180	Pmax=	548	385	304	240	216	175	133	105	73	59	28.60
	200	Pmax=	592	415	351	258	234	189	144	113	79	63	30.80

Topterm ZPmw	Carrier system Pmax											
	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m)									Panel weight (kg/m²)
			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	
Outer steel sheet pb. d=0.50 mm	50	Pmax=	230	165	142	109	88	74					14.30
Internal steel sheet pb. d=0.50 mm	60	Pmax=	264	190	163	125	106	92	79				15.40
	80	Pmax=	303	237	204	156	132	116	89	72			17.60
	100	Pmax=	396	286	244	188	169	138	106	84	63		19.80
	120	Pmax=	468	336	288	221	199	163	125	99	70	55	22.00
	150	Pmax=	525	376	323	248	223	183	140	111	78	65	25.30
Width of the support 120 mm	180	Pmax=	577	414	355	273	245	200	155	122	86	72	28.60
	200	Pmax=	623	447	384	294	266	217	166	131	93	77	30.80

*Static sizing calculation performed in accordance with **EN 14509 standard***
Normal deflection limit l/200

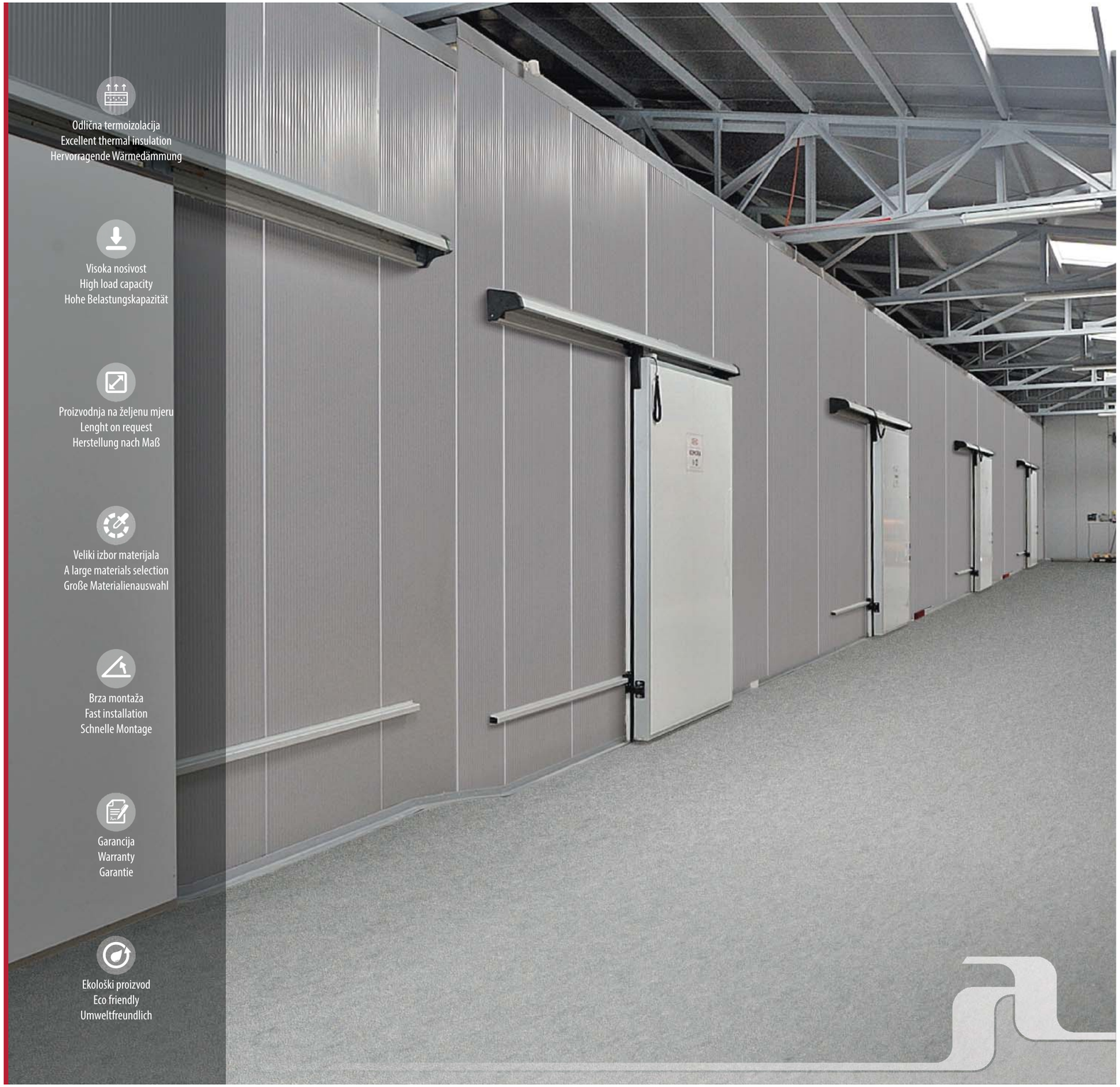
Topterm ZPmw	Coefficient of heat transfer								
	Panel thickness (mm)	50	60	80	100	120	150	180	200
	W/m²K	0.76	0.63	0.47	0.38	0.32	0.25	0.21	0.19
	Kcal/m²h°C	0.65	0.54	0.40	0.35	0.27	0.21	0.18	0.16


KIB

Topterm FPP

Sandwich panels for controlled environments

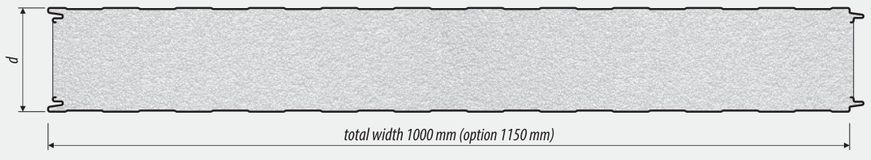
Panels for controlled environments, refrigerator panels, are used as ceiling and wall panels for chambers and cold storages where temperature needs to be kept constant - insulation properties of polyurethane show in their full capacity in this case. Refrigerator panels are manufactured up to 200 mm thick. Besides linear rollforming, they can have flat rollformimg, which is particularly important in case of facilities with strict hygienic requirements. Besides steel plasticized plates, refrigerator panels can be manufactured with stainless steel plates as well.



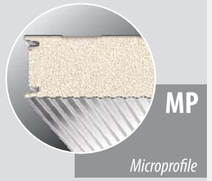
Termoizolacioni paneli
za kontrolirano okruženje
Sandwich panels
for controlled environments
Wärmedämmende Paneele
für kontrollierte Umgebung

Topterm FPP

PUR PIR



Profiling profiles



MP *Microprofile*

LP *Line profiling*

RP *Flat profile*

***Topterm FPP** panels connection detail*

Standard colors
for Topterm FPP panels

RAL 9002 *Gray white*

RAL 9010 *Silver*

INOX *Stainless steel*

Other colors according to the request

**The colors in the print are approximate to the color map*

Topterm FPP			Carrier system Pmax L										
	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m)										Panel weight (kg/m²)
			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	
Outer steel sheet pb. d=0.50 mm	80	Pmax=	495	359	288	224	153	121	94	62			12.00
Internal steel sheet pb. d=0.40 mm	100	Pmax=	608	453	359	282	203	157	122	93	61		12.80
	120	Pmax=	732	547	435	341	249	191	151	121	95	76	13.60
Width of the support 120 mm	150	Pmax=	915	683	523	412	313	238	191	147	124	102	14.80
	180	Pmax=	1103	804	646	493	377	298	226	183	158	128	16.00
	200	Pmax=	1175	918	751	563	433	337	269	217	188	158	16.80

Topterm FPP			Carrier system Pmax L L L										
	Panel thickness (mm)	maximum load (kg/m²)	Distance of the support "L" (m)										Panel weight (kg/m²)
			1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	
Outer steel sheet pb. d=0.50 mm	80	Pmax=	466	313	248	198	159	124	100	83	71	58	12.00
Internal steel sheet pb. d=0.40 mm	100	Pmax=	584	395	313	242	189	148	124	100	89	74	12.80
	120	Pmax=	708	495	372	298	222	171	142	118	100	89	13.60
Width of the support 120 mm	150	Pmax=	867	596	455	356	277	211	165	142	118	106	14.80
	180	Pmax=	909	702	535	424	312	256	195	165	142	118	16.00
	200	Pmax=	1003	825	624	473	362	302	225	177	153	130	16.80

*Static sizing calculation performed in accordance with **EN 14509 standard***
Normal deflection limit l/200

Topterm FPP	Coefficient of heat transfer						
	Panel thickness (mm)	80	100	120	150	180	200
	W/m²K	0.28	0.22	0.19	0.15	0.12	0.11
	Kcal/m²h°C	0.25	0.19	0.16	0.13	0.11	0.10

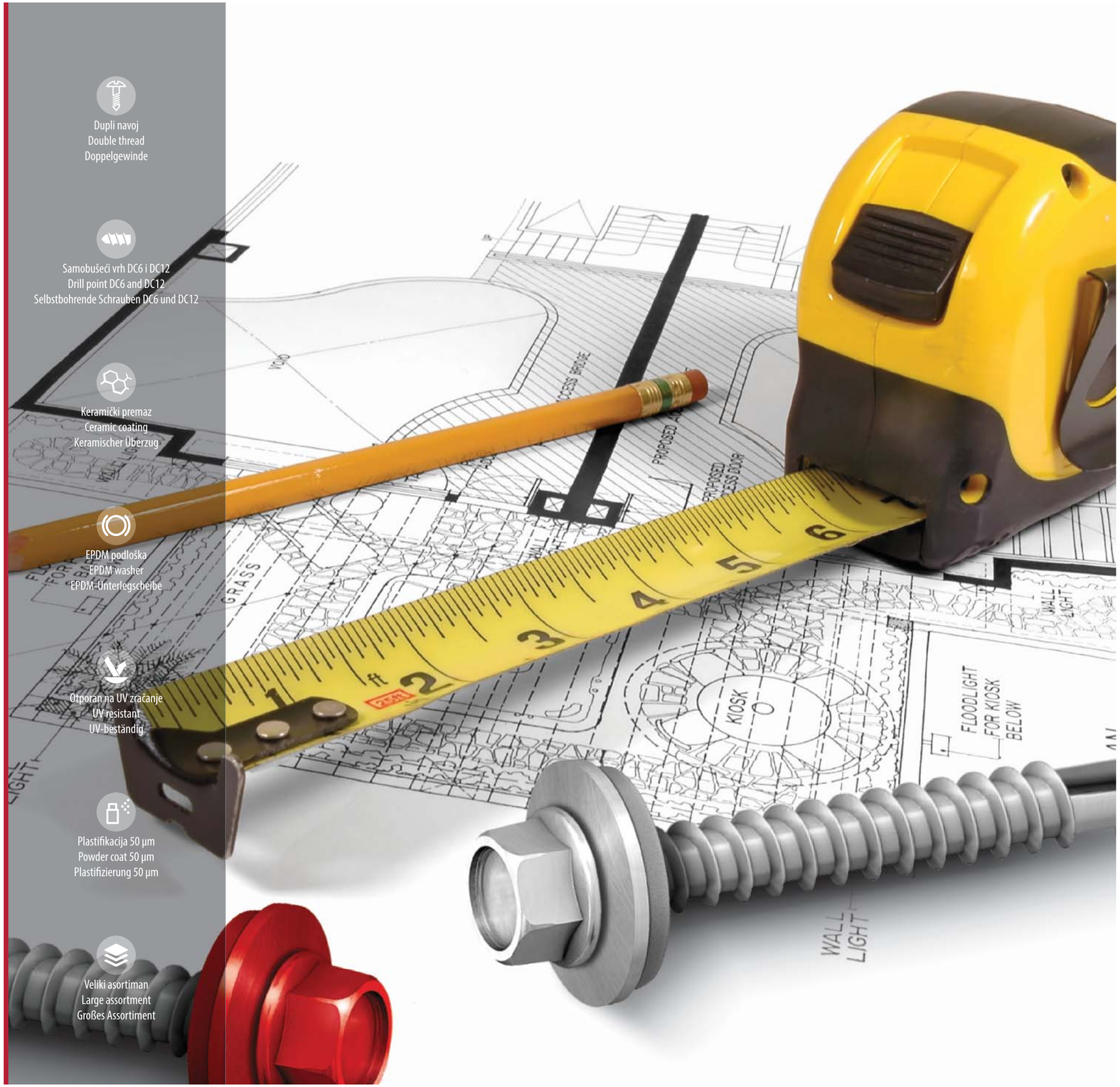
Assortment of screws

Screws that are used for fixing of panels to the supporting structure are very important element of roofing and facade cladding. We have a wide assortment of screws, designed for metal or wood structure, 25 to 280 mm long. Panel screws are protected with Dacrotized 500H ceramic coating, meaning that they can withstand 500-hour salt spray test.

Painted screws from our assortment are galvanized with 20 µm thick layer of zinc, and 50 µm thick coat of paint, which is very important for screws exposed to atmospheric impacts.

We have magnetic extension to be set to electric ar battery drill for all out screws.

Besides screws, we offer associated fittings, like capping for roof panels and rivets.

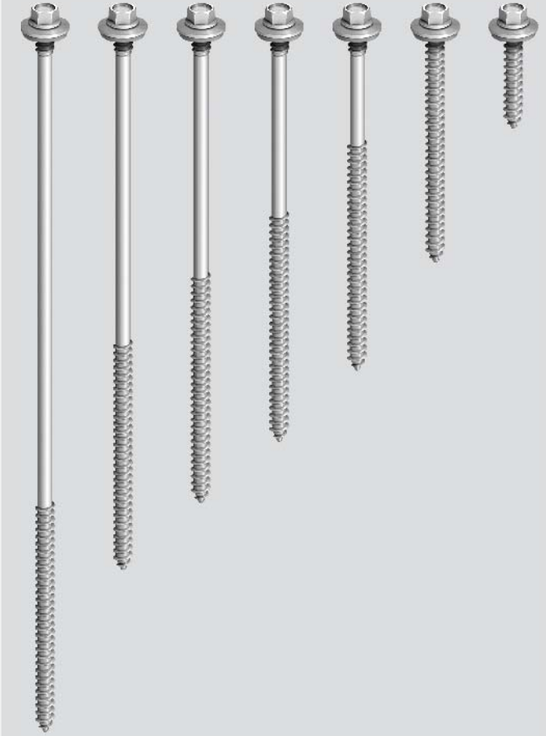


Assortment of screws

Panel screw for metal
Self-tapping screw DC6 and DC12

Panel screw detail

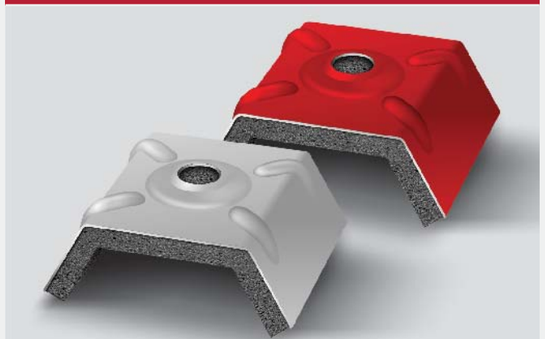
Pannel screw for wood
Self-tapping screw



Screws for metal sheet
Self-tapping screw

Rivet

Kalota



Tinsmith accessories

All tinsmith accessories and flashing are manufactured from the same material as covering. Since every facility has its own requirements for appearance and functionality, besides standard flashing, we can manufacture special ones based on the customer's sketches.

Production range also includes all required elements for quality drainage of atmospheric waters.

We also offer accessories for roofing like steam-permeable waterproof foils, polyurethane putty, profiled fillers, and many others.

Well supplied stock of raw materials and our own production enable us to provide short time of delivery.

Structural elements

Cold rolled structural elements from our production range are C and Y beams, which are manufactured from high quality structural steel plates, galvanizes with 275 g/m2 layer of zinc on both sides. The elements are the most commonly used as secondary roof of facade structures.

They are manufactured in three profile height variants of 100, 125, and 150 mm.

Cold rolled profiles reduce structural weight, accelerate construction, and, being manufactured from steel galvanized plates, they don't require additional corrosion protection.

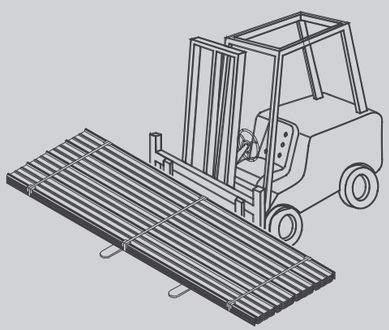
The profiles are manufactured in lengths according to customer's requirements, without unnecessary waste, providing easy and fast installation.

Storing instructions

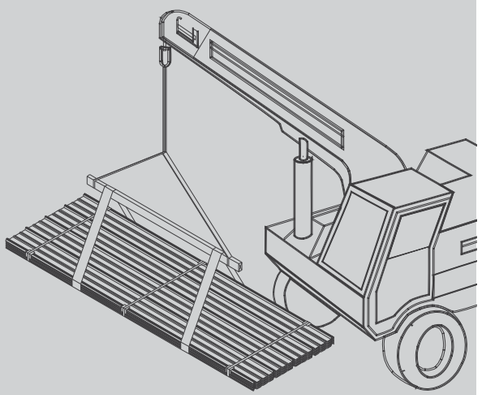
STORING INSTRUCTIONS

Panel packages are to be stored longitudinally inclined in order to enable drainage of atmospheric waters. Possible water between panels has to be avoided because it can cause permanent damages (stains and corrosion) even on refined surface plates. Long term outdoor storage of panel packages required covering with textile terpualine which enables aeration of panels.
During outdoor storing, the panels need to be protected from impact of sunlight, possibly with cardboard covering. In contrary, removing of protective foil from panels can be difficult.
In order to avoid pressure points, the packages may not be stacked.

During use of crane, please use angular protectors under lifting straps. Lift only one package at a time. For panels over 8 m long, load arrying bar must be installed.
During unloading by a forklift, the operator needs to operate very cautiously. The forklift needs to be positioned as far from the package as possible. For very long panels, two forklifts are to be used, as required.



a) An example of a panel forklift transport



b) Example of transporting the panel with a crane

Minor damages on plasticized surface occurred during transportation or installation can be repaired by painting brush (painting brush used for watercolors). Make sure to buy the paint which can be applied to galvanized base in one layer, with the same RAL shade as panel. Repairs of metalic surfaces, e.g. RAL 9006, are difficult. Microparticles which are mixed in the resin reflect light from various angles, causing the effect, and making repairs of these colors difficult.

Don't in any case lift roof panels by lifting straps without protected edges as that deforms and damages overlaps. Ensure proper arrangement and optimum distance of support points and panel brunt during lifting.

MANUFACTURER'S RECOMMENDATIONS

With roof panels, make sure to match the joint following the upper overlapping rib and the lower rejoint, which has to be the same on every joint. After final installation of a roof, further leveling is not possible. If joints are not properly positioned, diffusion of moisture and dripping of condensation can occur.

Alternativa d.o.o. manufactures roof panels with extended upper trapeze plate for joining/overlapping of panels. Since the panels are overlapped in the middle of support, it is very important to provide accurate panel lengths. Such panels are delivered with applied overlapping strip and notched on the underside at width specified by the customer (min. 70 mm). At the spot of installation and before installation, the customer clears the plate and surplus of filling.

Roof panels are fixed with self-tapping screws only on the rib, and never in the lower profile area. Always use "saddles" intended for panel joining points.

The screw may not be overtightened in order to avoid sinking of the rib/plate, which can result in leaking.
At the panel joining spots, on the front side of transverse joint, skirting braids, thick as the panel core, are installed. Under the upper panel, on the truss, approximately 3 mm thick rubber braid is installed. This forms a distance that prevents absorption of water due to capillary effect. Rainwater entering the gap can flow out, and the area can dry. Overlapping area of trapeze plates is fitted with two sealing strips of 15 mm minimum width each. Panels are fixed along axis of the sealing strips with self/tapping screws, ensuring a gap between plates, i.e. avoiding contact between plates. In contrary, due to capillary effect, water would get absorbed into the gap, which can cause corrosion.

During installation of facade panels, special attention is to be given to the width of joint between two panels, which need to be approximately 2 mm, in order to avoid undesired layout disrupting visual impression.
Both external and internal plates for sandwich panels are exposed to high temperature differences and subject to various longitudinal dilatations (stretching). If panels are not sufficiently fixed, that can have serious consequences. Dark exterior colors intensify bimetallic effect. Bending of panels between fixing points is normal. Adopted bending tolerance for panels is l/150, meaning that with 6 m distance from axis, 4 cm bending is perfectly normal.
Installation of overly long panels is not recommended for two reasons:

- Hazard of damage during transportation and installation due to difficult handling
- Changes in length due to dilatation

Topterm FPP are thermal insulation panels which are used primarily for cooling chambers and storages where temperature is to be kept constant. During installation, polyurethane adhesive is applied to the panel joint. Proper seating of polyurethane is to be ensured during installation in order to avoid occurrence of thermal bridge.

After installation of panels, and before installation of lashing plates, joints are filled with polyurethane foam. This foam is not permeable for steam, and if the project requires steam impermeability, joints need to be sealed with butan strip. After that, lashing plates can be installed.

Make sure to prevent excess of foam or drops of foam from dripping to finished panel surface as later those stains cannot be fully removed.

PROTECTIVE FOIL

Sandwich panels with protective foil have to be stored indoor, away from UV radiation and uncovered.

Remove protective foil before or immediately after installation. If the foil is exposed to sunlight for extended time, it becomes almost impossible to remove.

CUTTING OPERATIONS

Avoid application of angled grinders!
Grinders produce sparks which burn into plate surface and become almost impossible to remove. This results in countless rust spots on the panel surface. Due to high speed of grinder operation, filling distribute over large area.

Use circular saws reinforced with hard metal or special purpose chain saws. Remove cutting chips from surfaces immediately, as they rust with the first moisture causing the same damage as described above.
Chips from drilling and tightening of self-tapping screws have to be vacuum cleaned immediately because in contrary, they will deposit rust spots on the surface.

Why to choose Alternativa:

- Over 20 safe and successful years behind us
- Absolute regional leading in the industry
- Over 15 million square meters of rollformed plates
- Top companies have trusted us
- State-of-the-art equipment of European manufacturers
- Premium quality raw materials for production
- The widest range of products
- Modern design for premium appearance
- Short time of delivery
- Production in required dimensions and color
- The best proportion of price and quality
- Written guarantee for delivered product
- Certificates of competent institutions for products
- Free technical support of our professional staff

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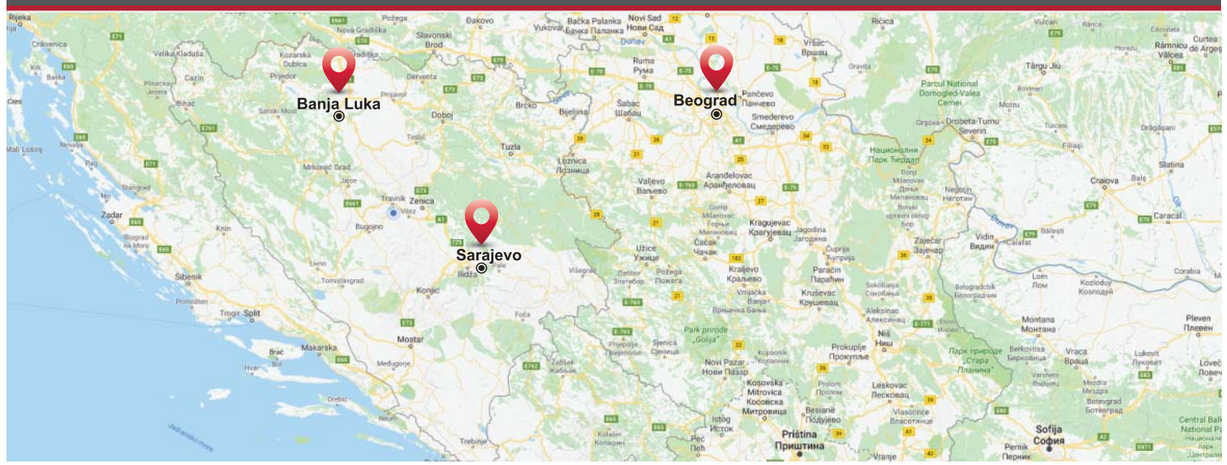

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