

Sandwich PIR



INDHOLD

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NORDIC PANELS RÅDGIVNING TIL ØGET VÆRDI

Nordic Panels sandwich produkter er blandt de førende på det europæiske marked, hvor produktionen udføres på de mest moderne fabrikker.

PIR sandwichpaneler er kendetegnet ved en god isoleringsværdi, lav vægt og ikke mindst en enkel og hurtig montage.

Kompetent produktvejledning, beregning og stærk logistik bidrager til iøjensaldende forskel og trykthed i Nordic Panels leverancer.

Wall panels

Sandwich panels system with rigid polyurethane foam core (PIR) in metal facings from production of PRUSZYŃSKI Sp. z o. o. includes wall panels with visible joint (PWS - PIR - ST), wall panels with hidden joint (PWS - PIR - PL), roof panels (PWD - PIR) and cold storage panels (PWS - PIR - CH).

Basic modular widths are:

- Wall panels with visible joints and cold storage panels 1150 mm.
- Wall panels with hidden joint and roof panels 1050 mm.

The longitudinal contacts („joints”) of the wall panels have a conical shape:

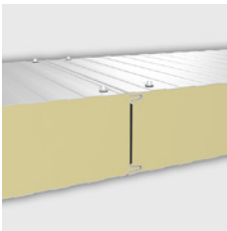
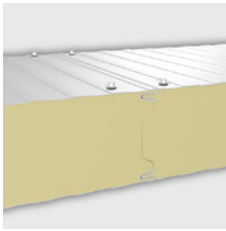
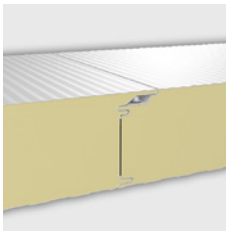
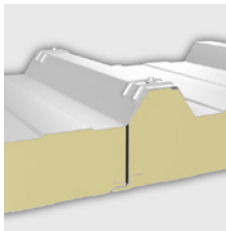
- facilitates assembly (saving time and minimizing risk of damage)
- provides water and air tightness,
- improves fire resistance, reaction to fire,
- increases the longitudinal rigidity of the boards - thus improving the bearing capacity and performance rigidity.

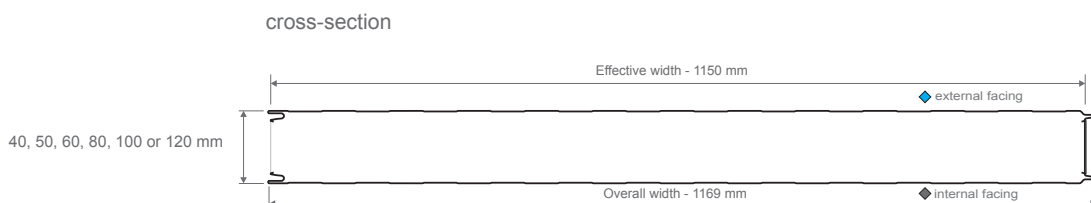
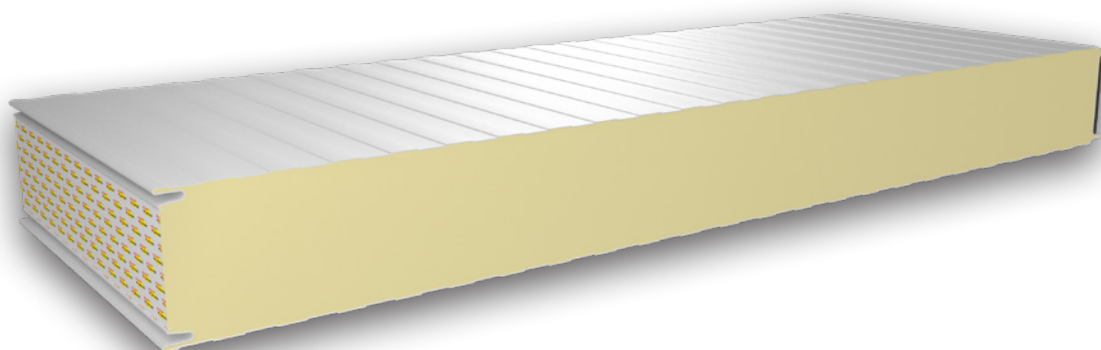
In the case of wall panels with hidden joint – they have unique geometry - „triple” feather - groove. Therefore, you can get even better fire safety properties and mechanical properties.

Roof panels

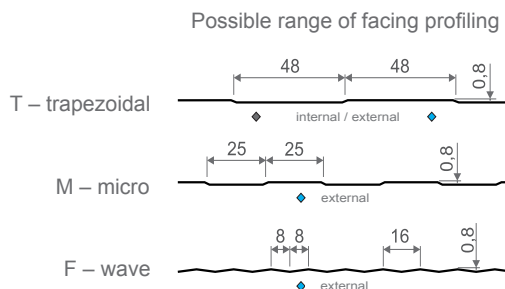
As for the roof panels, the external facing has been shaped (the main fold 40 mm high) that the load capacity is comparable to the roof panels with the main fold height 45 mm. Therefore, it is possible:

- saving on raw material
- saving on the length of assembly fasteners
- cost savings on transport

Types of PIRTECH panels				
Name	STANDARD - ST	COLD STORAGE - CH	PLUS - PL	ROOF
joint				
designation	PWS-PIR-ST	PWS-PIR-CH	PWS-PIR-PL	PWD-PIR
core	PIR polyurethane			
thickness (mm)	40/50/60/80/100/120	120/160/180/200/220	60/80/100/120	40/60/80/100/120/160
effective width (mm)	1150	1150	1050	1050
thickness of the facing (mm)	0,50	0,50	0,50	0,50
range of external profiling	trapezoidal - T / micro - M / wave - F			trapezoidal T40
range of internal profiling	trapezoidal - T			
anti-corrosion coating	Polyester / mat, polyurethane, HPS, PVDF			

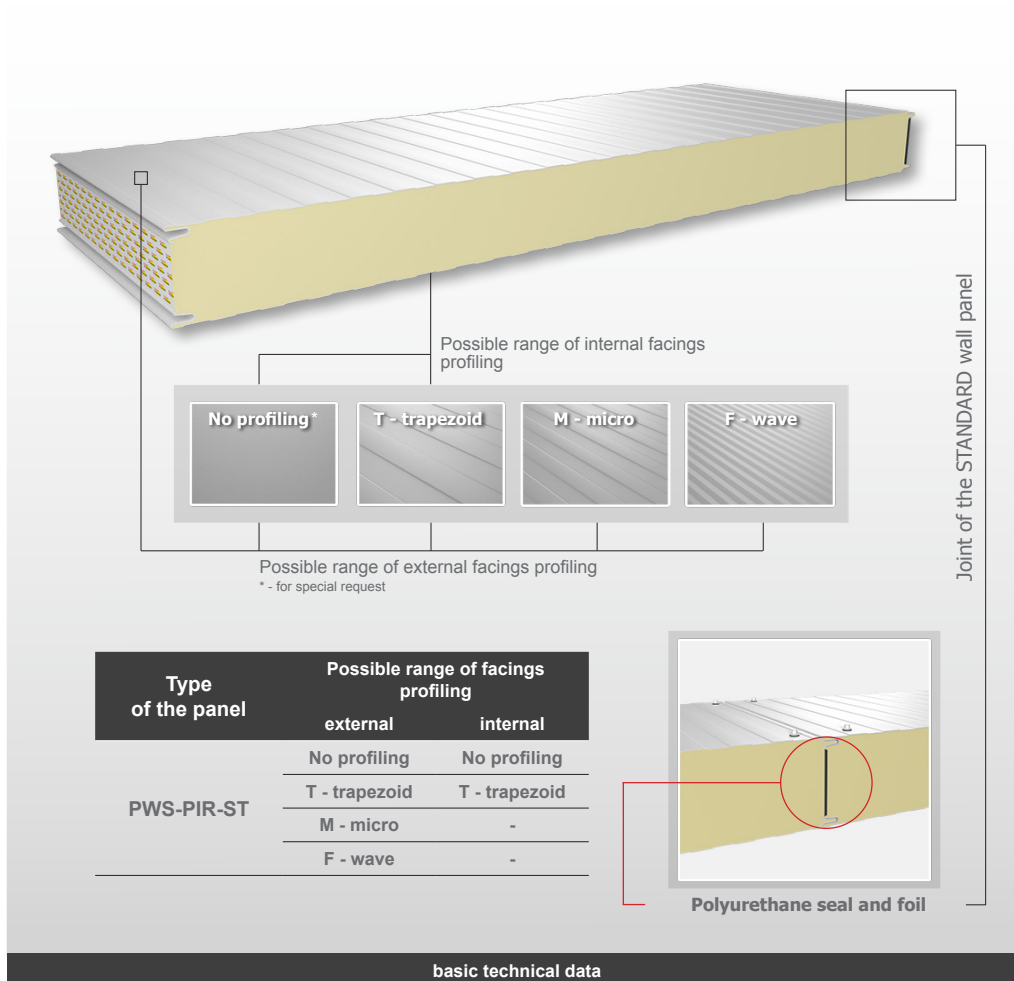


Possible range of facing profiling



Panels with visible joints are dedicated for projects where the basic investor's criteria are the technical parameters and the exterior appearance of its façade and visible joints may be accepted. For example – warehouses, factories, food and industrial warehouses.

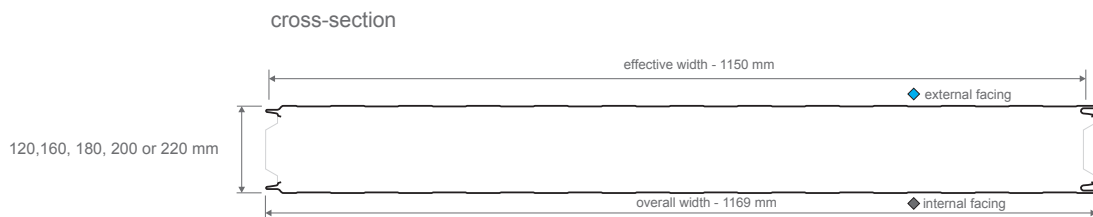
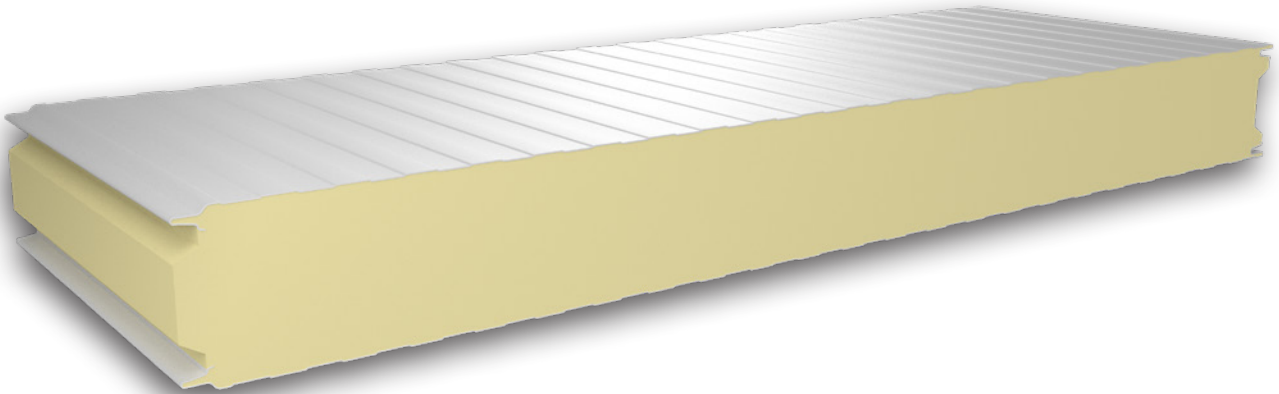
Profile of the STANDARD wall sandwich panel	
symbol / thickness	PIRTECH
PWS-PIR-ST 40	
PWS-PIR-ST 50	
PWS-PIR-ST 60	
PWS-PIR-ST 80	
PWS-PIR-ST 100	
PWS-PIR-ST 120	



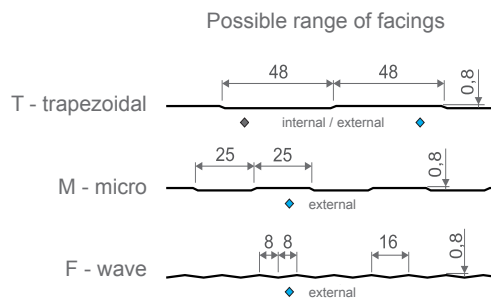
Type of the panel	Possible range of facings profiling	
	external	internal
PWS-PIR-ST	No profiling	No profiling
	T - trapezoid	T - trapezoid
	M - micro	-
	F - wave	-

basic technical data

	40	50	60	80	100	120
core thickness (mm)	40	50	60	80	100	120
effective width (mm)	1150					
overall width (mm)	1169					
thickness of facings (mm)	external 0,40-0,70 / internal 0,40-0,63					
polyurethane foam core (mm)	with a density of 40 (±3) kg/m ³					
colours facings	Colour palette					
panel length	2,0 mb					
max panel length	16 mb (depending on colour)					
weight 1 m ² (kg)	9,4	9,8	10,2	11,0	11,8	12,6
anti-corrosion coating	polyester gloss / mat, polyurethane, HPS 200					
declared heat transfer coefficient λD (W / mK)	0,023					
heat transfer coefficient - U _c (W / m ² K)	0,60	0,46	0,38	0,29	0,23	0,19
reaction to fire	-	-	-	B-s2, d0	B-s1, d0	B-s1, d0
flame propagation	NRO					
fire resistance	-	-	-	-	EI30 (0↔i)	EI30 (0↔i)
water permeability	Class A - 1200Pa					
air permeability	50 Pa 0,07 m ³ /hm ² -50 Pa 0,01 m ³ /hm ²					
water vapour permeability	impermeable					
sound insulation (dB)	27 (-;-;4) - 40 mm 25 (-;-;5) - 120 mm					
	For the whole family 25 (-;-;5)					
absorption index α _w	0,15					
tensile strength (MPa)	0,11					
tensile Modulus (MPa)	3,1					
shear strength (MPa)	0,10					
modulus of elasticity (MPa)	3,2					
compressive strength (MPa)	0,13					
modulus of Compression (MPa)	2,8	2,8	2,8	2,8	2,8	3,3
tensile modulus at elevated temperature (MPa)	2,6	2,6	2,6	2,6	2,6	5,1

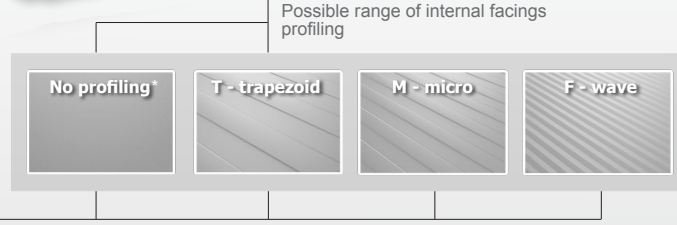
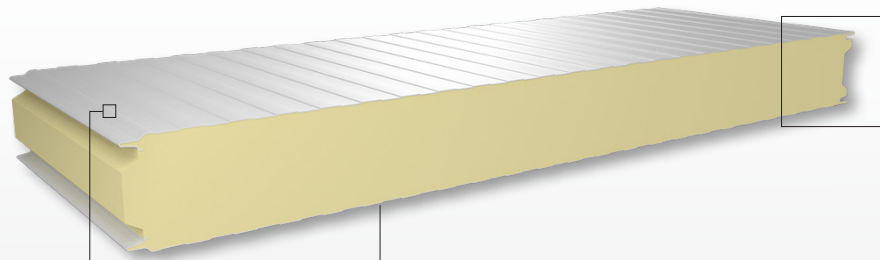


Possible range of facings profiling



The panel is designed for cold storage such as storage rooms, icehouses and freezers.

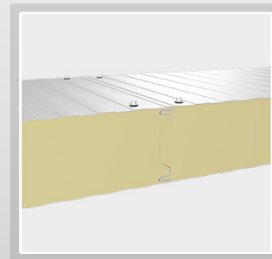
Range of facings profiling	
Symbol/thickness	PIRTECH
PWS-PIR-CH 120	
PWS-PIR-CH 160	
PWS-PIR-CH 180	
PWS-PIR-CH 200	
PWS-PIR-CH 220	



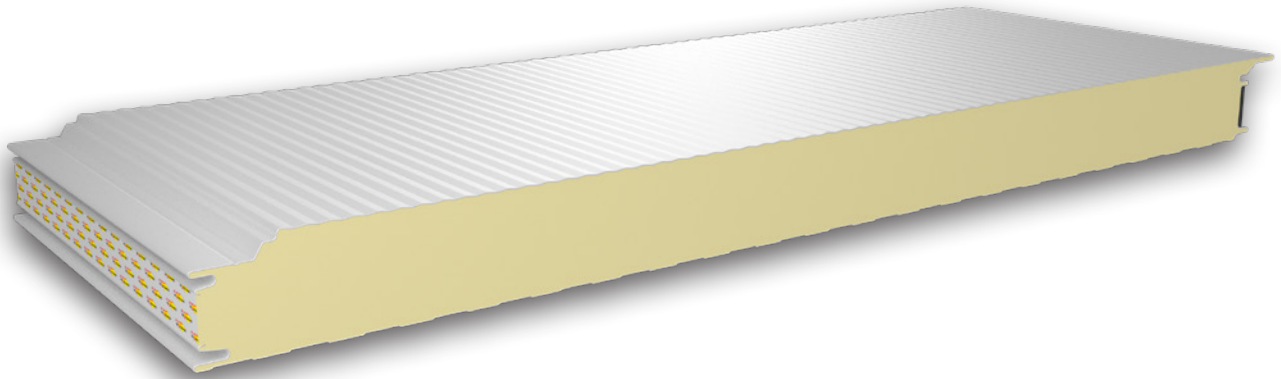
Possible range of external facings profiling

Joint of COLD panel

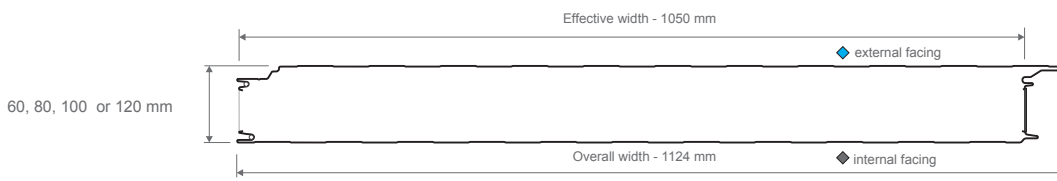
Type of the panel	Possible range of facings profiling	
	external	internal
PWS-PIR-CH	No profiling	No profiling
	T - trapezoid	T - trapezoid
	M - micro	-
	F - wave	-



Basic technical data					
core thickness (mm)	120	160	180	200	220
effective width (mm)	1150				
overall width (mm)	1169				
thickness of facings (mm)	external 0,40-0,70 / internal 0,40-0,63				
polyurethane foam core	with a density of 40 (±3) kg/m ³				
colours facings	colour palette				
min. panel length	2,0 mb				
max panel length	16 mb (depending on colour)				
weight 1 m ² (kg)	12,6	14,2	15,0	15,8	16,6
anti-corrosion coating	polyester gloss / mat, polyurethane, HPS 200				
declared heat transfer coefficient λ _D (W/mK)	0,0218 temp. +5°C	0,0213 temp. 0°C	0,0213 temp. 0°C	0,0207 temp. -5°C	0,0207 temp. -5°C
heat transfer coefficient - U _c (W/m ² K)	0,18	0,14	0,12	0,11	0,10
reaction to fire	B-s1, d0				
flame propagation	NRO				
fire resistance	EI30 (o↔i)				
water permeability	Class A - 1200Pa				
air permeability	50 Pa 0,07 m3/hm2 -50 Pa 0,01 m3/hm2				
water vapour permeability	impermeable				
sound insulation (dB)	26 (-4;-5) - 220 mm For the whole family 25 (-3;-5)				
absorption index α _w	0,15				
tensile strength (MPa)	0,11				
tensile Modulus (MPa)	3,1				
shear strength (MPa)	0,10	0,10	0,10	0,10	0,11
modulus of elasticity (MPa)	3,2				
compressive strength (MPa)	0,13				
modulus of Compression (MPa)	3,3				
tensile modulus at elevated temperature (MPa)	5,1				

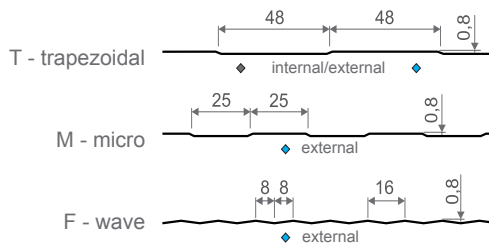


cross-section



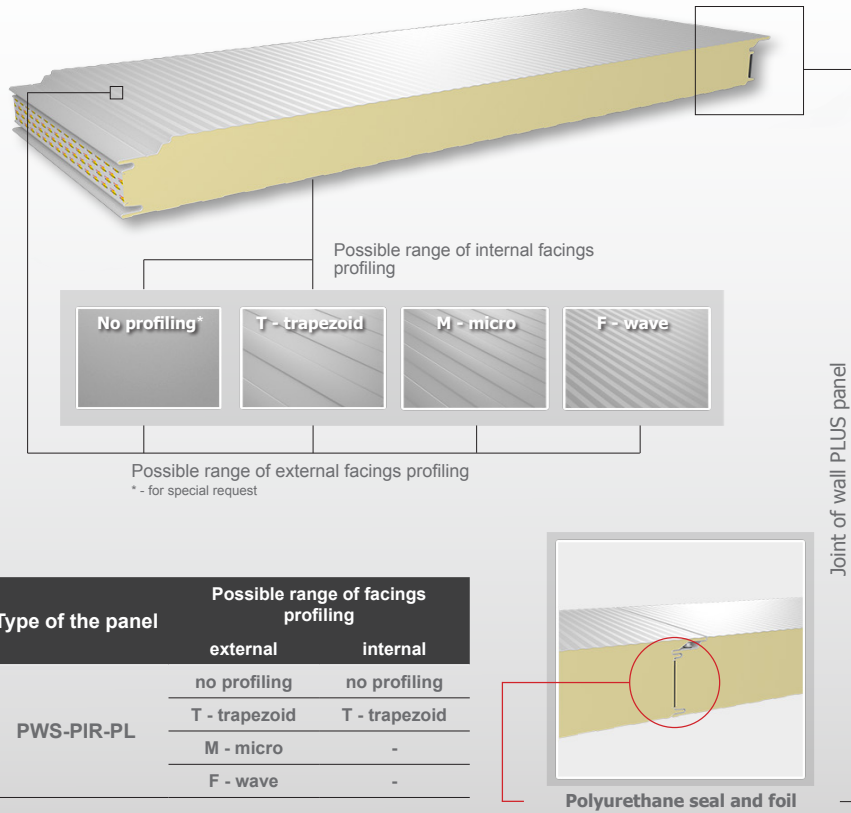
Possible range of facings profiling

Possible range of facings profiling



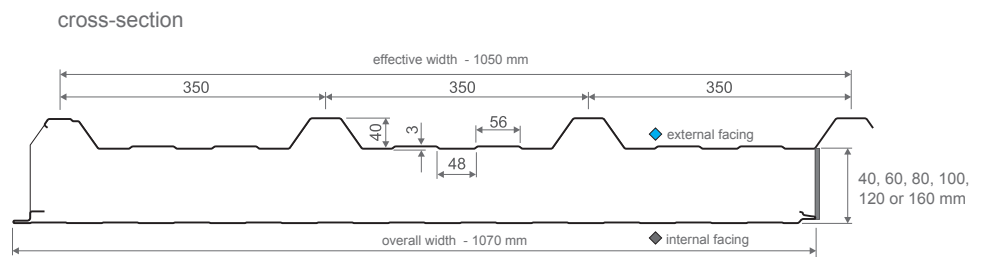
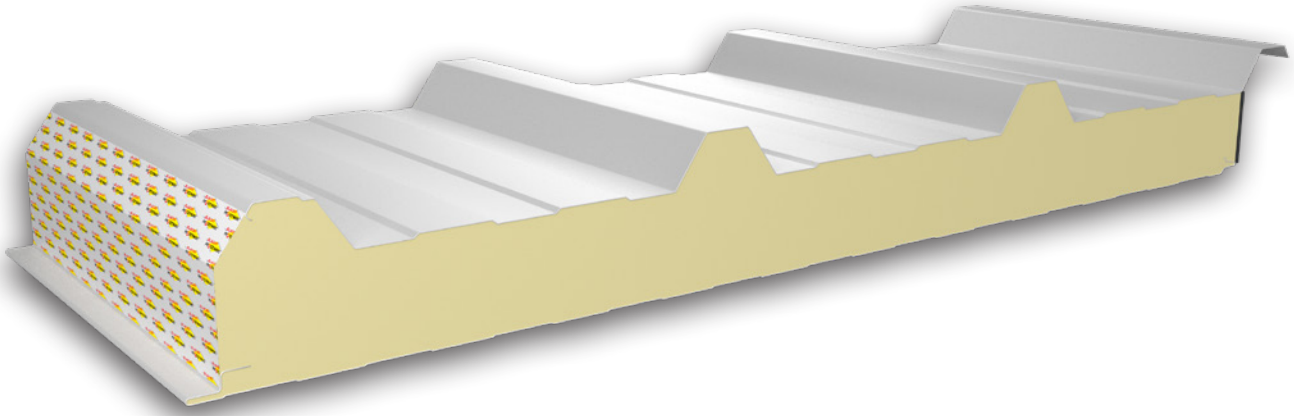
This panel has the hidden joint, designed for construction projects where one of its conditions is the aesthetic appearance of facade. Wide range of colours and its qualities allow to carry out the construction project incorporated into each urban plan. It gives the ability to combine different architectural styles in towns and villages. Panels with hidden joint can be used for facades of residential buildings, hotels, shopping facilities, office buildings, stations and other public buildings. It helps architects with the most modern construction projects.

Range of facings profiling	
Symbol/thickness	PIRTECH
PWS-PIR-PL 60	
PWS-PIR-PL 80	
PWS-PIR-PL 100	
PWS-PIR-PL 120	

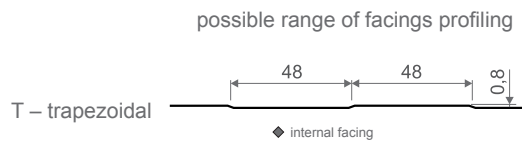


Basic technical data

	60	80	100	120
core thickness (mm)	60	80	100	120
effective width (mm)	1050			
overall width (mm)	1104			
thickness of facings (mm)	external 0,40-0,70 / internal 0,40-0,63			
polyurethane foam core	with a density of 40 (±3) kg/m ³			
colour facings	colour palette			
min. panel length	2,0 mb			
max panel length	16 mb (depending on colour)			
weight 1 m ² (kg)	10,2	11	11,8	12,6
anti-corrosion coating	polyester gloss / mat, polyurethane, HPS 200			
declared heat transfer coefficient λ_D (W/mK)	0,023			
heat transfer coefficient - U _c (W/m ² K)	0,41	0,30	0,23	0,19
reaction to fire	B-s2, d0			
flame propagation	NRO			
fire resistance	-	-	-	EI30 (o←i)
water permeability	Class A - 1200Pa			
air permeability	50 Pa 0,08 m ³ /hm ² -50 Pa 0,16 m ³ /hm ²			
water vapour permeability	impermeable			
sound insulation (dB)	For the whole family 25 (-3;-5)			
absorption index α_w	0,15			
tensile strength (MPa)	0,11			
tensile modulus (MPa)	3,1			
shear strength (MPa)	0,10			
modulus of elasticity (MPa)	3,2			
compressive strength (MPa)	0,13			
modulus of compression (MPa)	2,8	2,8	2,8	3,3
tensile modulus at elevated temperature (MPa)	2,6	2,6	2,6	5,1

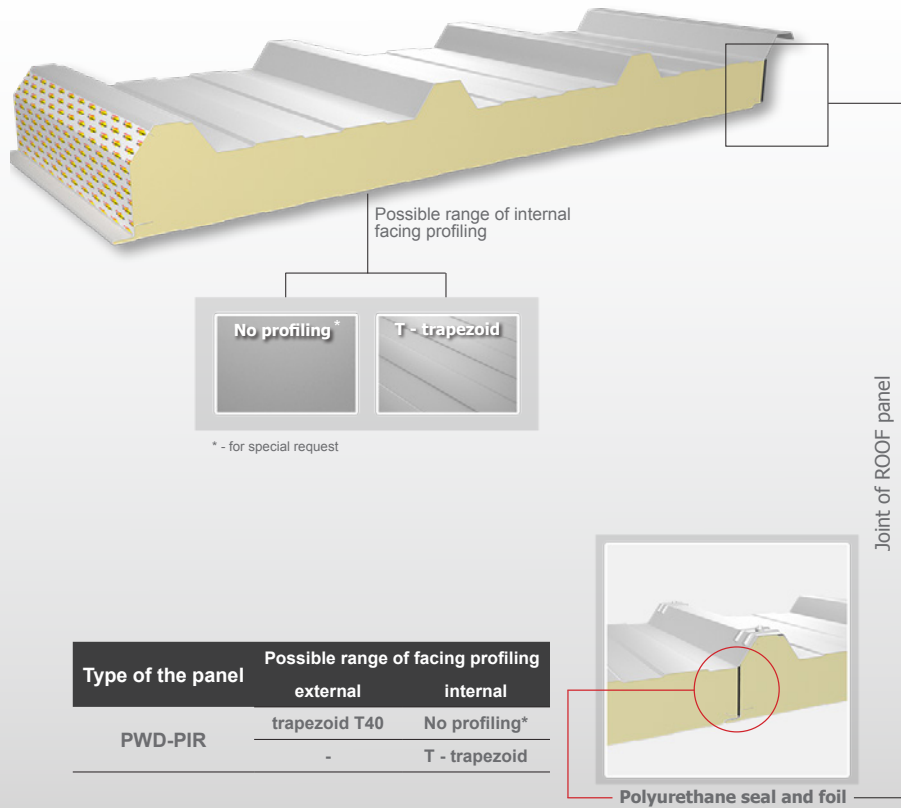


Possible range of facings profiling



Universal roof panel for all types of roofs and various slope accounts for different types of buildings.

Range of facings profiling	
Symbol / thickness	PIRTECH
PWD-PIR 40	
PWD-PIR 60	
PWD-PIR 80	
PWD-PIR 100	
PWD-PIR 120	
PWD-PIR 160	



Type of the panel	Possible range of facing profiling	
	external	internal
PWD-PIR	trapezoid T40	No profiling*
	-	T - trapezoid

Basic technical data						
core thickness (mm)	40	60	80	100	120	160
effective width (mm)	1050					
overall width (mm)	1069					
thickness of facings (mm)	external 0,40-0,70 / internal 0,40-0,63					
polyurethane foam core	with a density of 40 (±3) kg/m ³					
colours facing	colour palette					
min. panel length	2,0 mb					
max panel length	16 mb (depending on colour)					
weight 1 m ² (kg)	9,4	10,2	11,0	11,8	12,6	14,2
anti-corrosion coating	polyester gloss / mat, polyurethane, HPS 200					
declared heat transfer coefficient λ _D (W/mK)	0,023					
heat transfer coefficient - U _c (W/m ² K)	0,53	0,37	0,28	0,22	0,18	0,14
reaction to fire	B-s2, d0			B-s1, d0		
external exposure to fire	B _{roof} (t1) (t2) (t3)					
fire resistance	REI30 / RE60					
water permeability	Class A - 1200Pa					
air permeability	50 Pa 0,02 m3/hm2 -50 Pa 0,37 m3/hm2					
water vapour permeability	impermeable					
sound insulation (dB)	23 (0;-3) - 40 mm					
	24 (-2;-4) - 120 mm					
	For the whole family 23 (-1;-3)					
absorption index α _w	0,20					
tensile strength (MPa)	0,11					
tensile Modulus (MPa)	3,1					
shear strength (MPa)	0,11					
modulus of elasticity (MPa)	3,2					
compressive strength (MPa)	0,13					
modulus of Compression (MPa)	2,8	2,8	2,8	2,8	3,3	3,3
tensile modulus at elevated temperature (MPa)	2,6	2,6	2,6	2,6	5,1	5,1

POLYESTER COVERINGS

glossy PS 25 µm



RAL 9010 ^{(1) (2) (3)} SNOWY WHITE	RAL 9002 ^{(1) (2)} WHITE	RAL 7035 ^{(1) (2)} GREY	RAL 9006 ^{(1) (2) (3)} SILVER	RAL 9007 ^{(1) (2)} SILVER METALIC	RAL 7000 ⁽¹⁾ GREY
RAL 7024 ⁽¹⁾ GRAPHITE	RAL 7016 ^{(1) (2)} ANTHRACITE	RAL 5010 ^{(1) (2)} BLUE	RAL 6029 ^{(1) (2)} GREEN	RAL 6005 ⁽¹⁾ DARK GREEN	RAL 1021 ⁽¹⁾ YELLOW
RAL 1002 ^{(1) (2)} SAND	RAL 8023 ⁽¹⁾ COPPER	RAL 8004 ⁽¹⁾ BRICK	RAL 3016 ^{(1) (2)} CORAL	RAL 3005 ⁽¹⁾ CHERRY	RR 028 ⁽¹⁾ CHERRY
RAL 3011 ⁽²⁾ CHERRY	RAL 8017 ^{(1) (2)} BROWN	RR 032 ⁽¹⁾ DARK BROWN	RAL 9005 ⁽¹⁾ BLACK	⁽¹⁾ GOLDEN OAK	RAL 1015 ⁽¹⁾ CREAM - BEIGE

PMG 35 µm coarse matt

RR 011 ⁽¹⁾ GREEN	RR 750 ⁽¹⁾ BRICK	RR 028 ⁽¹⁾ CHERRY	RR 032 ⁽¹⁾ BROWN	RAL 8017 ⁽¹⁾ BROWN	RAL 7016 ANTHRACITE
RR 033 ⁽¹⁾ BLACK	⁽¹⁾ DARK WALNUT				

HYBRID COATINGS

PURMAX 40 µm polyester+polyurethane
HYBRID COVERING



RAL 8004 ⁽¹⁾ BRICK	RAL 8017 ⁽¹⁾ BROWN	RAL 9005 ⁽¹⁾ BLACK	RAL 7016 ⁽¹⁾ ANTHRACITE
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POLYURETHANE COVERINGS

PURLAK 50 µm

RAL 8004 ⁽¹⁾ BRICK	RR 028 ⁽¹⁾ CHERRY	RAL 8017 ⁽¹⁾ BROWN
RR 033 ⁽¹⁾ BLACK	RAL 7016 ⁽¹⁾ ANTHRACITE	

PURMAT 50 µm

RR 750 ⁽¹⁾ BRICK	RR 011 ⁽¹⁾ GREEN	RR 028 ⁽¹⁾ CHERRY
RAL 8017 ⁽¹⁾ BROWN	RR 033 ⁽¹⁾ BLACK	RAL 7016 ⁽¹⁾ ANTHRACITE



⁽¹⁾ steel sheet thickness 0.5 mm, ⁽²⁾ steel sheet thickness 0.7 mm, ⁽³⁾ steel sheet thickness 1.0 mm,
Actual colours may vary from displayed or printed images

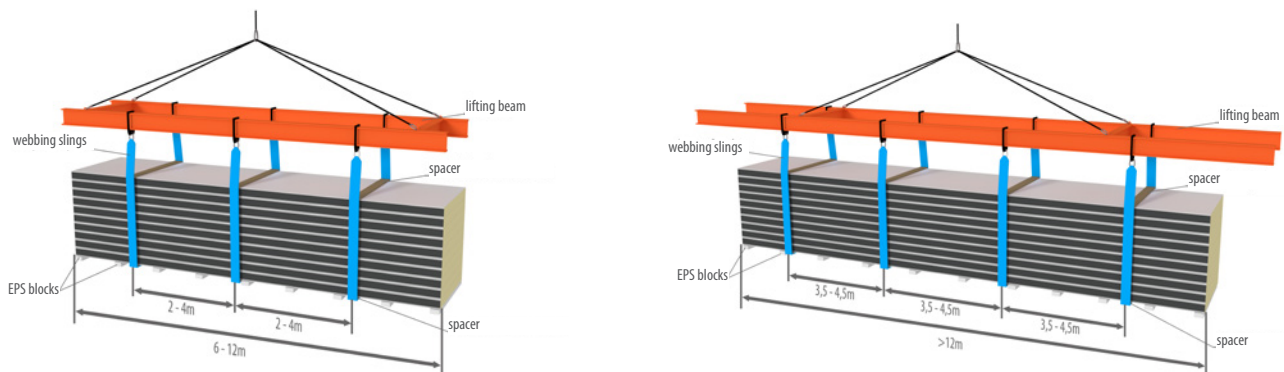
Transport and storage

The recommended transport of sandwich panels is the car truck (tractor + semitrailer of not less than the length of the loaded plates) with open semi-trailer or side-loading on both sides of the length. The weight of the load must not exceed the allowable load capacity of the kit.

Transport belts should be arranged on the load at a distance of max. every 3 m, but not less than 2 belts per package - belt tension cannot cause plate deformation.

For the unloading the panels up to 6m, the use of trolleys with forks is permitted with adjustable fork width, however, the forks should have spacing min. 2m and minimum width 150mm. For lifting packages above the length 6m the transport belts and traverse should be used. For parcels with a length of 6-12m, belts should have min. width 200mm and be spaced every 2-4m. Indicated spacing between belts for parcels longer than 12m is 3.5-4.5m at min. Belt width 200mm. It is recommended to set belts on wooden spacers with min. width 300mm and min. thickness 25mm placed at the bottom and top of the pack.

It is prohibited to use steel ropes or chains. Do not lift packages on crimping belts, crossing, and otherwise damaging commodity.



Hand unloading is acceptable for panels up to 6m long when unloading individually and with specific caution. It is forbidden to pull panels on the ground and one on another.

