

PIR Sandwich Panels

PIR sandwich panels use a polyisocyanurate foam core — the modern successor to polyurethane — that insulates better than any other core (λ 0.022 W/mK), holds its shape to 120 °C and chars rather than melts in a fire, earning B-s1,d0 / B-s2,d0 classification and the approval of most insurers. They are the standard core of our roof, wall and cold-room panels in 40–200 mm; we make them on our continuous line at Dilovası with PPGI skins in the stock colours.

λ 0.022 W/mK	B-s1,d0 / B-s2,d0	40–200 mm	Roof · wall · cold room	Insurer-approved
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PIR is why a 50 mm panel insulates like 90 mm of rockwool and why a warehouse insurer signs off on a foam-core roof. It is the core we make most, and unless the fire code says non-combustible it is the one to specify.

GRADES, STANDARDS AND TOLERANCES

Grade / standard	Yield (MPa)	Note
PIR core, 38–42 kg/m³, pentane-blown	λ 0.022 W/mK	B-s1,d0 / B-s2,d0 to EN 13501-1; EN 13165
Compressive strength	$\geq$ 0.10 N/mm²	at 10 % deformation
Service temperature	–40 to +120 °C	dimensionally stable
Water absorption	< 2 % vol.	closed cell
Skins DX51D / S250GD + Z100–Z275 + PPGI	$\approx$ 140 / 250	EN 10346 / EN 10169

Declared values per EN 14509 CE marking; aged λ per EN 13165 Annex C.

PIR VS PUR VS ROCKWOOL VS EPS

Core	λ (W/mK)	Thickness for U = 0.25	Density (kg/m³)	Fire (EN 13501-1)	Max. temp.	Price index	Choose for
PIR	0.022	85 mm	40	B-s1,d0 / B-s2,d0	120 °C	100	the standard; best insulation, insurer-accepted
PUR	0.024–0.026	95 mm	40	B-s2,d0 / B-s3,d0	100 °C	95	economy where fire class is not specified
Rockwool	0.040	150 mm	100–120	A2-s1,d0	250 °C+	125	non-combustible, EI fire walls, acoustic
EPS	0.036	140 mm	15–20	B-s2,d0 / E	75 °C	80	cheapest; partitions, mild climates

Price index for 50 mm wall panel with identical skins. Thickness for U = 0.25 W/m²K includes skins.

PIR PANEL THICKNESS AND U-VALUE

Thickness	U-value (W/m²K)	R-value (m²K/W)	Weight (kg/m²)	Typical use
40 mm	0.52	1.9	9.8	unheated sheds, canopies
50 mm	0.42	2.4	10.2	standard roofs and walls
60 mm	0.35	2.9	10.6	workshops, light heating
80 mm	0.27	3.7	11.4	heated halls, offices
100 mm	0.21	4.7	12.2	chillers 0 to +5 °C, energy codes
120 mm	0.18	5.6	13.0	cold stores –5 to 0 °C
150 mm	0.14	7.0	14.1	freezers –20 °C, EU codes
200 mm	0.11	9.3	16.0	deep freeze –40 °C

SKINS, COATINGS AND COLOURS

Skin	Thickness	Zinc / paint	Where
PPGI PE 25 μ m	0.40 / 0.50 / 0.60 mm	Z100–Z140, RAL 9002 / 9010 / 3009 / 7016 ...	outer and inner face standard
PPGI SMP / PVDF	0.50 / 0.60 mm	Z140–Z275	coastal, Gulf, colour warranty
Galvanized	0.40 / 0.50 mm	Z140–Z275, unpainted	inner face on a budget
Food-grade PE	0.50 mm	Z140, RAL 9010	food, cold-store interiors
Aluzinc / aluminium	0.50 / 0.60 mm	—	to order

Outer skin profiled (micro-rib, lined or 5-rib roof); inner skin micro-ribbed or flat.

STANDARDS

EN 14509 — self-supporting double-skin metal-faced insulating panels · EN 13501-1 fire classification; EN 13165 (PIR/PUR), EN 13162 (mineral wool), EN 13163 (EPS) cores · EN 10169 / EN 10346 skin steel · EN 10204 3.1

