Aluminium Sandwich Panel

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Istanbul · Dilovası plant

Aluminium sandwich panels replace the galvanized steel skins of a PIR, PUR or rockwool panel with coil-coated aluminium — 0.50–0.70 mm EN AW-3105 or 3005 in PE, PVDF or food-grade lacquer — so that the panel cannot rust from its cut edges, screw holes or scratches in salt air, ammonia, chlorides or washdown. Made on our continuous line in 40–200 mm thicknesses, roof and wall profiles, cam-lock cold-room panels and rockwool fire panels, they are the building envelope for coastal and marine plants, fish, poultry, meat and dairy factories, chemical and fertiliser stores, cold and CA stores, swimming pools, and the Gulf's most corrosive sites — about 35 % lighter than the steel-faced panel and with the same insulation values.

EN 14509 · CE | Skins 0.50–0.70 mm 3105 / 3005 | PIR · PUR · rockwool 40–200 mm | PVDF · PE · food-grade | ≈ 35 % lighter than steel-faced

A steel-faced sandwich panel dies at its edges: white rust at the cut, red rust around the screw, ten years in a fish plant. Put aluminium on both faces and the same PIR core lasts as long as the foam does.

PANEL TYPES AND CORES

Panel	Core	Thickness	λ (W/mK)	Skins	Fire class	Use
Wall panel (micro-rib / flat / box)	PIR	40–150 mm	0.022	0.50–0.70 mm	B-s1,d0 (B-s2,d0)	walls of coastal, food and chemical plants
Roof panel (5-rib, 40 mm rib)	PIR	40–150 mm	0.022	0.60–0.70 mm outer / 0.50 inner	B-s1,d0	pitched roofs from 5°
Cold-room panel (cam-lock)	PIR / PUR	60–200 mm	0.022–0.024	0.50–0.60 mm, food-grade	B-s2,d0	cold and freezer stores, CA stores, processing rooms
Fire wall panel	rockwool 100–150 kg/m³	50–200 mm	0.040	0.60–0.70 mm	A2-s1,d0 · EI 30–120	fire compartments, boiler rooms, kitchens
Rockwool roof panel	rockwool lamella	80–200 mm	0.040	0.70 mm outer	A2-s1,d0 · REI 30–60	fire-rated roofs
Ceiling / partition panel	PIR	40–100 mm	0.022	0.50 mm both	B-s1,d0	suspended ceilings, hygienic partitions

Standard cover width 1 000 mm (1 150 mm on request), lengths 2–13.5 m; PIR cores are pentane-blown, CFC / HCFC-free; rockwool cores are cut and rotated lamellae bonded with two-component PU. Panels are CE-marked to EN 14509.

THERMAL PERFORMANCE AND WEIGHT

Thickness	PIR U (W/m²K)	PIR weight (kg/m²)	Rockwool U (W/m²K)	Rockwool weight (kg/m²)
40 mm	0.52	6.5	—	—
50 mm	0.42	6.9	0.78	11.5
60 mm	0.35	7.3	0.65	13.0
80 mm	0.27	8.1	0.49	16.0
100 mm	0.21	8.9	0.39	19.0
120 mm	0.18	9.7	0.33	22.0
150 mm	0.14	10.9	0.26	26.5
200 mm	0.11	12.9	0.20	34.0

Steel-faced PIR panels of the same thickness weigh about 3.5–4.5 kg/m² more. U-values per EN 14509 for the panel body; joints and fixings add 0.01–0.03 W/m²K.

SPAN TABLES

Thickness	Single span	Multi span	Roof panel, 0.75 kN/m² (multi)
40 mm	2.6 m	3.0 m	—
60 mm	3.3 m	3.8 m	2.6 m
80 mm	3.8 m	4.4 m	3.1 m
100 mm	4.3 m	4.9 m	3.5 m
120 mm	4.7 m	5.3 m	3.9 m
150 mm	5.2 m	5.9 m	4.3 m

About 15–20 % less than steel-faced panels of the same thickness because of the aluminium skin's lower modulus; increase skin thickness to 0.70 mm for spans within 10 % of steel. Rockwool panels span about 20 % less than PIR. The project engineer designs to EN 14509 with the site loads and the panel's declared values.

SKINS, COLOURS AND FOOD-GRADE FINISHES

Skin	Alloy	Coating	Where
Standard outer	3105 H44 0.60 mm	PE 25 µm, RAL 9002 / 9010 / 9006 / 7016 stock	walls and roofs, C3–C4

Skin	Alloy	Coating	Where
Coastal / architectural outer	3105 or 3005 H44 0.60–0.70 mm	PVDF 25–35 µm, any RAL, metallic	C5 marine, façades, colour warranty 20 yr
Food-grade inner	3105 H44 0.50 mm	food-contact PE 25 µm (EU 10/2011 / FDA), white	food, dairy, meat, pharma, cold rooms
Chemical inner	3105 H44 0.50 mm	PVDF or HDP, washdown-resistant	chemical, fertiliser, chlorine washdown
Stucco mill-finish outer	3105 H44 0.60 mm	uncoated stucco	industrial, budget corrosion resistance
Bare-mill inner	3105 H44 0.50 mm	uncoated	warehouses, unheated buildings

Dark PVDF colours (LRV < 20 %) on aluminium are limited to 6–8 m panel length for thermal bowing; light colours to 13.5 m.

STANDARDS

EN 14509 — self-supporting double-skin metal-faced insulating panels (CE) · EN 1396 — coil-coated aluminium sheet · EN 485 / EN 573-3 — aluminium sheet and alloys · EN 13501-1 — reaction to fire (B-s1,d0 PIR; A2-s1,d0 rockwool) · EN 13501-2 — fire resistance (EI 30–120 rockwool) · EU 10/2011 / FDA — food-contact lacquer on inner skin