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Aluminium for Technical Insulation

Why EN AW 3005 is the better choice for technical insulation

EN AW 5049 vs. EN AW 3005

Not all aluminium is the same. While EN AW 5049 excels particularly in marine applications, insulation systems primarily require excellent formability, corrosion resistance, energy efficiency, and cost-effectiveness. EN AW 3005 combines these properties, making it the optimal choice for technical insulation in industrial construction.

Criterion	EN AW 5049	EN AW 3005
Formability	Good	Very good
Corrosion resistance	Very good, maritime	Very good
Energy consumption	High	Low
Environmental impact	Chromium, high magnesium content	Very little chromium, less magnesium
Cost	Medium	Cheaper
Areas of application	Shipbuilding, offshore, near the coast	Industrial insulation (all-rounder)

What's in the alloys and how they work

The alloying elements used influence, amongst other things, strength, corrosion resistance and formability. The following overview compares their effects and the available data for both aluminium alloys.

Alloying element	Effect on aluminium	Contained in EN AW 5049	Contained in EN AW 3005
Manganese (Mn)	↑ Strength ↑ Corrosion resistance	Yes, 0.5 - 1.1 %	Yes, 1.0 – 1.5 %
Magnesium (Mg)	↑ Strength ↑ Weldability ↑ Energy consumption	Yes, 1.6 – 2.5 %	Yes, 0.2 – 0.6 %
Silicon (Si)	↑ Casting properties	Yes, 0.4 %	Yes, 0.6 %
Copper (Cu)	↑ Strength ↑ Corrosion resistance	Yes, 0.1 %	Yes, 0.3 %
Zinc (Zn)	↑ Strength ↑ Castability	Yes, 0.2 %	Yes, 0.25 %
Chromium (Cr)	↑ Corrosion resistance ⚠ Environmental impact	Yes, 0.3 %	Max. 0.1 %

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