

Top 4 reasons aluminum remains the material of choice for aerospace

Today, aluminum is still the most used material among the largest commercial aircraft manufacturers in aerospace, and there is ample evidence suggesting it will remain so due to its unique characteristics and advantages for the entire industry. The rise of composites with the launch of the Boeing 787 and Airbus A350 at the beginning of this century was initially viewed as a potential threat for the aluminum aerospace industry. But economic realities and years of research into lighter and more mature aluminum alloys has helped aluminum remain the material of choice for aerospace. In fact, the planes of today and tomorrow are hybrid – and will be mainly made of aluminum.



Proven technology for more than a century

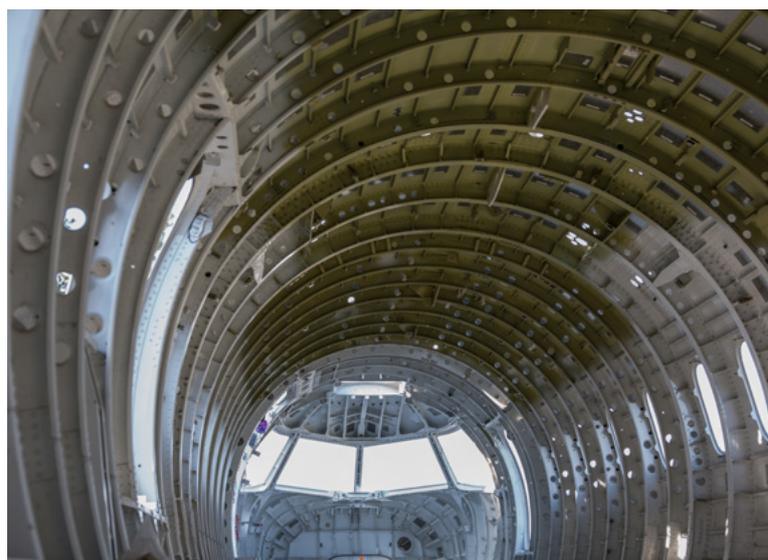
Engineers can very well predict aluminum's behavior, helping to ensure that major aircraft structural components will be maintained before potential damages may become critical. In addition, and in contrast to composite designs, aircraft ground damages in aluminum are immediately visible. Their repair is a standard procedure being applied all over the world.

Cost savings & supply chain reliability

While a couple of years ago the main focus was on weight-saving, today cost savings and supply chain reliability are also critical factors in material choices. As aircraft builders strive to deliver at least 70 to 80 new aircrafts per month, a robust supply chain with guaranteed on-time deliveries is an absolute requirement. Aluminum plate and sheet production processes have been continuously adjusted over many years in order to meet the high standards of the aerospace industry and are ready to support build rate increases. In addition, as aerospace suppliers move toward vertical integration, we're seeing fewer supplier-to-supplier transfer related costs, such as transportation and administrative costs and higher efficiencies.

Aluminum is more sustainable

Aluminum is in many ways an inherently sustainable product. Closed-loop partnerships that allow aerospace customers to recycle processing scrap make it easier for aircraft builders to make their production processes more environmentally friendly. Since aluminum can be recycled repeatedly, it is extremely competitive when compared to other materials. Recycling aluminum eliminates waste and reduces the need for primary metal that requires more energy to produce. On average, products made with recycled aluminum require significantly less energy than those made with primary aluminum.



New alloys offer a bright future

New higher performance aluminum products at the same or even better value will create more potential for aircraft design. Aleris, in collaboration with Airbus, has developed an alloy of aluminum-magnesium-scandium. AlMgSc is more than 4 percent lighter compared to today's state-of-the-art alloys like 2024/2524. But the new alloy also allows for new forming and assembly techniques. Aleris expects AlMgSc to be used in the first planes at the beginning of the this decade.

