

Aluminum

The Material with the Perfect Balance

Of the many metals out there, aluminum shows the best balance of properties which makes it an ideal choice for many industries with lower cost and low temperature applications.

Aluminum has excellent physical and mechanical properties providing that it is not subjected to high heat environments (beyond 100°C). It is much more lightweight than titanium, nickel and steels alloys.

Is Aluminum for You?

If you have either have a low temperature product or application that needs a material with good physical properties, then aluminum is for you.

It is also for customers for whom cost is a driving factor. Al is cost advantageous compared with traditional alloys as titanium and nickel, furthermore, the volume by kilogram is roughly three times compared to steels or nickels alloys.

Over the years, because of its low cost per volume, effort have been made to developed different Al alloys tailored for various application that needed either high heat conductivity, good corrosion resistance or strength.

- ✓ **LOW TEMPERATURE**
- ✓ **LIGHT WEIGHT**
- ✓ **GOOD PHYSICAL PROPERTIES**
- ✓ **LOWER COST**
- ✓ **HIGH HEAT CONDUCTIVITY PROPERTIES**



Aerospace

Al-Si7-Mg (F357) has been designed with the aerospace industry in mind and has better mechanical properties at slightly elevated temperatures, ideal for heat exchangers for example.



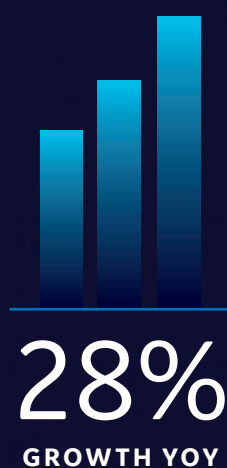
Automotive

Al-Si10-Mg is better for automotive parts such as exhausts, and emissions systems that don't require high temperature mechanical properties.



Service Bureaus

From a material cost per volume perspective, aluminum is an ideal choice for businesses needing a smaller run of mechanical parts. The applications here are endless.



A Material on the Up

The latest Wohlers Report (2020) predicted that the use of aluminum within additive manufacturing processes will grow annually by 28%. This is a higher growth prediction than any other metal alloy on the market today. It's likely to take two to three years to increase aluminum adoption, but there is a lot of activities around aluminum powder already.

The consensus among the industry is that when automotive really starts to increase the use of additively manufactured aluminum parts, that is when we will experience the exponential growth of aluminum in additive manufacturing. Given the work being undertaken right now, the thought is that this won't be long, so now is the ideal time to start involving aluminum in your additive manufacturing processes.

When more aluminum alloys begin to be added to the list of printable powders, the growth could potentially increase even further than industry analyst estimates, so there's a lot to look out for.

