

CO2 vs Fiber vs UV Lasers for Aerospace Parts

Aerospace laser cutting uses systems like CO2, Fiber and UV technologies and they all have their place in precision manufacturing. This is especially true for supporting the aerospace industry. There are no best laser technologies, but best system types for the specific service, component or part needed. The use of lasers in aerospace and many other industries are used for their precision and capabilities that other technologies do not have. They are versatile in the kind of materials they can process and do so by supporting production volumes and research and development. There are systems for aerospace sheet metal fabrication, laser marking, laser ablation, and laser cutting. I find it fun to view comparisons of different technologies and how they relate in their function and capabilities. I hope the following table will enlighten you to the similarities and differences of aerospace fabrication done with CO2, Fiber and UV laser systems:

Feature	CO2 Laser	Fiber Laser
Primary Function	Cutting, Drilling	Cutting, Welding
Material Expertise	Non-metals, plastics, composites (Kevlar), rubber	Metals like aluminum, titanium, tungsten, stainless steel.
Cutting Precision	Good: (0.1 - 0.5 mm)	Excellent :(less than 0.1 mm)
Heat Affected Zone(HAZ)	Larger	Smaller
Material Versatility	Moderate	High
Beam Quality	Continuous Wave	Pulsed or Continuous Wave
Typical Applications	Drilling holes in composite panels, honeycomb structures, Cutting intricate shapes in non-metals, cabin walls, seat components and other interior parts	For gaskets, shims, hinges, fuselage welding aircraft components, plates, blades, other engine parts.

With many precision applications needed for aerospace fabrication, laser technology is playing a key role for production manufacturing, but also an important role in developing new advances with aerospace laser cutting for prototyping of R&D programs. Lasers in general do not need mechanical tooling to produce the desired part but work off the CAD data. This flexibility allows for quick changes to the cutting program and can save material cost by nesting of geometries when the same materials and thicknesses are used. Overall, comparing CO2, Fiber and UV systems is not for determination of which one is the best, but which system type will be best for the specific project. Laser cutting for aerospace, defense, energy, medical device, and other critical industries is sought after by OEMs for the functions and benefits offered by laser technology and will benefit your next project as well.

Please read more at:

[CO2 vs Fiber vs UV Lasers for Aerospace Parts - A-Laser Precision Laser Cutting](#)

[A-Laser Precision Laser Cutting - Laser Ablation, UV and IR Lasers](#)