

Laser Welding

We deliver:

- 15% to 30% cost savings
- Optimized weld operations
- High-quality welds



The Industry Challenge

As today's laser welding technology progresses and leads to higher production rates, it is also overcoming key challenges, such as technical and financial limits. Laser power is increasing and technology is becoming easier to handle. Additionally, solidstate technology has become more affordable, and, as automation progresses, CAPEX is simpler to contain.

In addition to the type and power of your laser source, weld quality and operations are also influenced by your choice of shielding gas and how you control it at point of use.

Whatever you need to maximize your welding quality and operations, **Nexelia for Laser Welding** offers you the optimal solution.

The Nexelia Solution

A comprehensive gas solution designed for and adapted to your specific needs, **Nexelia for Laser Welding** combines the best of our gases, application technologies and expert support. As with all solutions under the Nexelia label, we work closely with you to pre-define a concrete set of results, and we commit to delivering them.

Nexelia for Laser Welding is an all-in-one solution designed to optimize weld quality and costs by using a combination of inert gases (Argon, Helium, or a mixture of both) and innovative nozzles.

Air Liquide has the know-how to inject and control inert gases and has developed a unique set of proprietary nozzles, each of them adapted to your specific application. This allows you to facilitate operations, improve quality control, and thus optimize your production costs.

Nexelia for Laser Welding is ideal for automotive and fabrication industries that use laser welding.

Your Advantages

- **Improve and simplify weld operations.**

Thanks to improved gas control provided by **Nexelia for Laser Welding's** innovative nozzles, the laser-welding process window is enlarged, making operations easier and more efficient. With a decrease in spatter emissions, you reduce downtime needed for cleaning.

- **Maintain maximum weld quality**

With **Nexelia for Laser Welding**, Air Liquide masters the gas flow and minimizes pollution from air, resulting in a smoother weld bead, improved laser-beam energy transfer, and reduced fumes and spatter.

- **Optimise welding costs**

You reduce costs even more by decreasing post-weld operations and improving your productivity rates. Usage of pure Argon or He-Ar mixtures is a more secured and economical technology.

Core Features

Nexelia for Laser Welding consists of:

• **Argon and He/Ar mixture supply:**
from liquid storage or in gaseous state.

Argon or He/Ar mixtures are selected according to your specific application, type of laser source and welded materials, and combined with the suitable nozzle.

• **Innovative laser nozzles:**
Air Liquide offers a unique set of laser nozzles adapted to your laser-welding needs:

- **LASER NOZZLE-JET** is a robust and easy-to-use patented nozzle for linear welds designed to avoid gas plasma and reduce plume extension above the weld pool. This results in optimal laser-beam energy transfer to the weld pool. A dynamic gas jet allows Argon to be used in all welding configurations.

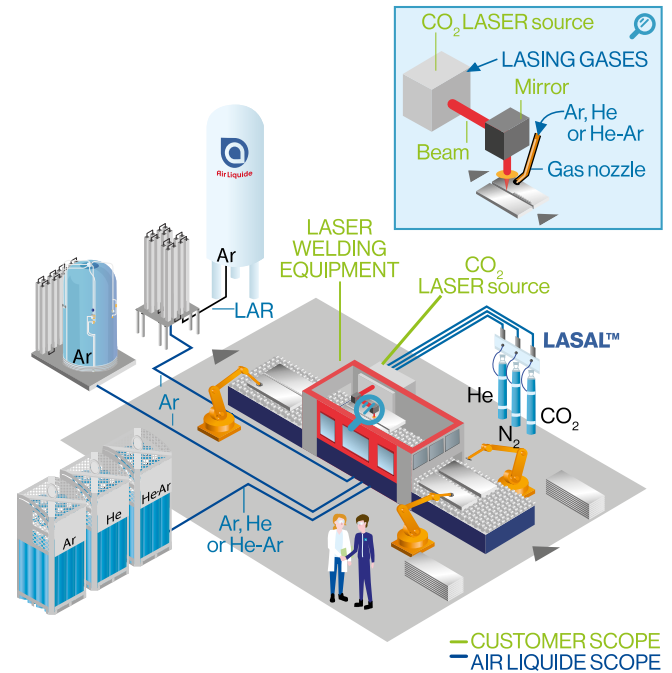
- **LASER NOZZLE-SHIELD** is an easy-to-use gas nozzle designed by Air Liquide to optimize gas flow distribution. It results in a significant decrease of atmospheric contamination in the welding pool. This nozzle is compatible with all applications and gases (Argon, Helium or mixtures).

- **LASER NOZZLE-CONTROL** is a patented gas nozzle designed by Air Liquide to increase the keyhole opening, this improving the evacuation of pollutants such as zinc vapors.

Customer laser application	Air Liquide nozzle	Inert gas	Main benefits
High-volume linear welding: tubes, tailored blanks	Jet	Ar	Large process window, weld quality, cost control
All welding applications	Shield	Ar He	Weld quality, improved shielding at optimized cost
Linear welding of zinc-coated sheets	Control	Ar	Process simplification, weld quality

• **Process expertise and service**

Air Liquide's application experts provide you with full support at every phase, from the assessment of your laser welding needs to the deployment of your solution, as well as technical assistance regarding gas solutions.



Case Study

Tailored blank welding with 8kW CO₂ laser source

Solutions	Conventional nozzle with He	LASER NOZZLE-JET with Ar
Gas (€/y)	38	6
Nozzle (€/y)	1	15
Total	39	21
Savings (€/y)		18
Scrap rate decrease		1%
Savings (€/y)		6
Productivity increase		1%
Savings (€/y)		5
Total savings (€/y)		29

→ Savings: **€k29** per year

Related Offers

- **LASAL™** gases and mixtures for lasing gases used for CO₂ laser sources and cutting assist gases.
- **ARCAL™** gas and mixtures for arc welding and plasma cutting.

Contact us

Air Liquide - IM-WBL
75 quai d'Orsay
75321 Paris Cedex 07 - France

www.airliquide.com

