



Press Release

April 14, 2010

Cover Gas Laser Welding and Glovebox Hermetic Laser Welding

Using a controlled environment for laser welding or just a cover gas...

The question is often asked, "When is it appropriate to use just a cover gas for the laser welding process as opposed to using a completely controlled environment?" Typically it comes down to whether you need to trap an atmosphere within the part. If so, then Glovebox Hermetic Laser Welding is required. If you're just looking to have a hermetic barrier or have some initial welds done before the final welding, then a cover gas will work fine.

What is Cover Gas Laser Welding?

Cover gas laser welding is welding that uses a cover or shield gas of Nitrogen or Argon during the welding process to disperse Oxygen from the weld zone. Cover gas laser welding allows for quicker running of parts and higher volumes to be processed. Parts done with this process typically have no restrictions on the surrounding atmosphere, and the operator is free to work with the parts in an open environment.

Although this is an "open air" environment, precautions and safety measures are taken to ensure all parts are handled properly. Such as with the use of a laminar flow bench, which controls a specific work area atmosphere, where parts can be kept free of contamination before and after welding.

What is Glovebox Hermetic Laser Welding?

Glovebox Hermetic Laser Welding, otherwise known as Hermetic Laser Sealing or Welding in an Inert Environment, is welding within a Glovebox to control the atmosphere. In accordance with MIL-SPEC-883 and MIL-PRF-38534 the glovebox is filled with two inert gases, one being Argon or Nitrogen and the other always being Helium. This Helium mix allows for the parts to be fine leak checked post sealing using a Helium Mass Spectrometer.

With Glovebox Hermetic Welding you can create the required atmosphere as noted above, trap it within the part and perform the final seal. Implantable Medical Devices, Class K Space Hardware and Aerospace Components typically require this type of controlled atmosphere welding to avoid latent failure.

Is it Always One or the Other?

The short answer is NO. There are often times when both services can be used for a particular part. You can achieve the same high quality weld using a cover gas as you can in the glovebox, the only exception is that you can't trap an atmosphere using just a cover gas. Any welding that you can do using the cover gas environment, should be; as it keeps your final production costs down.



Some welding companies will try to tell you that a glovebox is required for all phases of welding, but the truth is you typically only need the final weld to be done in the glovebox. After the initial welds are complete and the parts are ready to be sealed, the final hermetic sealing can be done within the glovebox.

The Best Part...

Litron Does Both! Litron's facilities are equipped with a full job shop, servicing both cover gas laser welding and glovebox hermetic laser welding. They'll evaluate your parts and requirements and let you know the best and most cost effective approach to take.

For example, Litron has a medical device client with a part that requires twenty-seven (27) total welds. The final weld is the only one that requires Glovebox Laser Welding to trap the atmosphere within the part. The other welds for the part are all done using cover gas laser welding, which reduces the total cost of the part, and decreases turn-around time while still providing the highest quality weld.

Have questions? Call or email Litron today!

1-866-LITRON-1 or sales@litron.com