

# Laser Hermetic Sealing Process

Space Applications Centre (SAC) has developed laser hermetic sealing process which is use in Hermetic sealing of Al to Al RF package and cover. it is a non contact type of method used for space borne RF package to cover sealing.

Laser hermetic sealing process is a non contact method to seal packages using laser beam which creates molten pool and on solidification which results in weld joint at geometrical interface of lid and package. Programmable Laser is delivered through an optical fibre which is highly localized and incident on the sealing interface of RF package and respective cover. Sealing process is carried out inside a glove box chamber which is filled with the inert gas. After Sealing, Sealed packages must conform to MIL-STD-883, test method 1014 to ensure hermetic seal joint integrity of the Packages.

## Applications area

Sealed RF packages hosting bare MMIC chips have been used in the development of miniaturised microwave subsystems for advanced communication and navigations payloads. These bare chips are assembled on ceramic substrates using different microelectronics assembly processes. MMIC chips are sensitive to the moisture, corrosive gases etc. so to get stable and desired performance, these bare chips must be protected from the adverse environmental effects. Therefore to protect these chips and produce highly reliable metal joints, laser hermetic sealing of RF packages have been carried out and the seal joint meeting MIL-STD-883/1014 standard requirements.



## Specifications:

*laser based technology has been developed for non contact laser hermetic sealing of RF packages and meeting fine leak requirements as per MIL-STD-883 test method 1014 standards.*

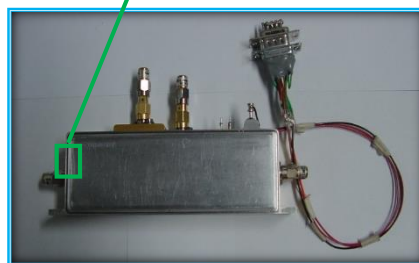
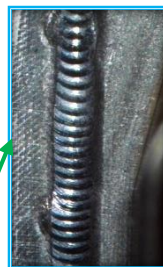
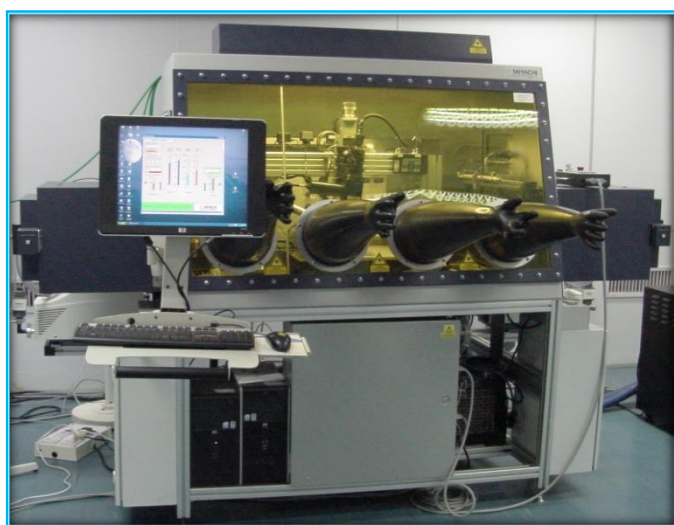
### **Technology :- Non Contact Laser Hermetic Sealing Technology.**

*Material:- Al 6061 to Al 4047", Nd:YAG: Wavelength 1064 nm.*

*Application Area :- Microwave remote sensing, navigational & communicational payloads.*

*Advantage :- Non-contact method, low HAZ, Suitable for fragile substrates, Production friendly etc.*

*Technology Space Qualified process:- Al 6061 to Al 4047".*



*Laser Hermetic Sealing System & Sealed Package*

## Technology Transfer

SAC/ISRO, offers to transfer this technology of the Al to Al Laser Hermetic Sealing Process developed by SAC to industries in India with adequate experience and facilities. Enterprises interested in obtaining knowhow may register and submit their proposal to Indian National Space Promotion & Authorization Centre (IN-SPACe), Ahmedabad.

<https://www.inspace.gov.in>

**For more details, you may Contact:**

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