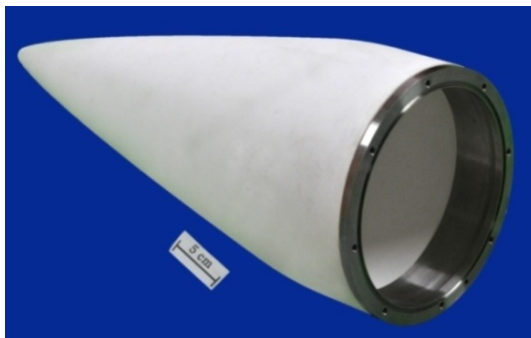


## Manufacture of Fused Silica Radar Domes by Cold Isostatic Pressing and Sintering Route

Defence Metallurgical Research Laboratory (DMRL), Hyderabad has developed Fused silica radomes by Cold Isostatic Pressing (CIP) Technology integrated with RF seeker and performance evaluation tests were successful. The CIP technology of DMRL offers high yield of radomes with targeted/acceptable properties. This technology uses indigenously available raw materials.

**Brief about the Technology:** Fused silica is the preferred ceramic material for fabrication of radomes based on its attractive electromagnetic and mechanical properties as well as good thermal shock resistance. DMRL has successfully established the Cold Isostatic Pressing (CIP) and sintering route to manufacture fused silica radomes with acceptable properties for missile application. The technology envisages identification of (i) Powder characteristics (ii) Binders and special sintering reagents (iii) CIP parameters and (iv) Sintering schedules to achieve the material with desired microstructure and amorphous structure. The CIP+sintered silica exhibits desired combination of density, electro-magnetic and mechanical properties. A patent application on the CIP-technology for silica radomes has been filed to Indian Patent authorities vide Application No: 201611032025.



**CIP+Sintered and machined silica radomes of with metallic bulk head.**

**Application areas:** The fused silica radomes are used for a wide-range of target seeking missiles.

The CIP technology developed in DMRL for fabrication of radomes has undergone type trials involving internal R&QA of DMRL, MSQAA (DRDL) and RCMA (Materials). The material corresponding to full-size radomes was evaluated for all relevant properties including non-destructive evaluation and subsequently the type test schedule was prepared.

**Transfer of CIP Technology for bulk production of radomes:** Large number of radomes requirement is anticipated for various programmes. The patented CIP technology of DMRL was transferred to three industries on non-exclusive basis for regular production.

This technology is offered for technology transfer to more industries on non-exclusive basis after technical evaluation of the industries as per the DRDO Policy and Procedures for Transfer of Technology.

Interested Industries are requested to forward their Expression of Interest (EoI) to Director DMRL, Hyderabad (with attachments of supporting documents) with a copy to Director DIITM, DRDO HQ (without attachment) on following address:-

**Director**

**Defence Metallurgical Research Laboratory**

Kanchanbagh P.O.,

Hyderabad-500058

Phone : 040-2434 0681

Fax : 040-24340683

**Email : director[dot]dmrl[at]gov[dot]in**

**Copy to:**

**Director**

**Directorate of Industry Interface & Technology Management (DIITM)**

Room No. 447, DRDO Bhawan, Rajaji Marg, New Delhi – 110 011

Phone: 011-23013209/23015291

Fax: 011-23793008

**Email: diitm[dot]hqr[at]gov[dot]in**

**List of Support documents to be attached with EoI**

- a) Memorandum and Articles of Association (Should be incorporated as per Indian Companies Act, as amended time to time)
- b) Certificates of registration as a manufacturing unit, if any.
- c) Audited Balance Sheet for the preceding three years.
- d) Income Tax returns for the preceding three year period
- e) Details of shareholding/ownership pattern especially foreign partners/ shareholders, foreign employees, directors, etc. The company must adhere to the prevailing Govt of India policies and regulations on Foreign Direct Investment (FDI)/DIPP norms as applicable.
- f) Annual budget for R&D during last three years.
- g) Numbers and details of IPR or patents, etc., held by the company.
- h) Number of technically or professionally qualified personnel.
- i) Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).
- j) Availability of adequate infrastructure (List of machines and their production capacities) and technical expertise.
- k) List of Testing and Support equipment's
- l) ISO/ ISI certification or any other certification
- m) Relevant clearances form the authorities/ ministries (if any)
- n) Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.
- o) Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.
- p) PESO and DPIIT license for explosive handling if ToT is for high energy Material, explosives, propellants, and component/ system dealing with it etc (if applicable).
- q) Under taking form company seeking ToT that none of its Directors, Independent Directors, non-executive Directors, Key management personnel are involved in any corrupt practices, unfair means and illegal activities.
- r) Details of the industrials license for defence manufacturing be provided by the industry seeking ToTs.