# RESIN FILM INFUSION

A systematic research effort to develop low-cost fabrication processes for manufacturing of large composite structures has reached maturity at R&DE(E). Resin Film Infusion (RFI) process has been developed for applications such as FRP bridges, armoured vehicle hull, FRP shelters, naval structures etc. In general this technology can be directly applied for development of any large composite structure including aerospace structures. Technology for incorporation of nano-fillers has also been established and can be offered as value addition to the RFI tape as per requirement.

RFI technique proprietary to R&DE(E) is equivalent to the popular commercially available product SPRINT, developed by SP systems, UK. The SPRINT technique has been quite popular with the boat, racing car manufacturers etc. RFI involves developing a resin formulation such that resin is cast in the form of film. These resin films are then sandwiched between fiber layers, laid on the tool and component manufactured by vacuum bagging technique under ambient pressure and high temperature. It has been observed that products made using RFI have better mechanical properties comparable to prepreg autoclave cured products with near zero void content. Incorporation of nano materials for properties upgradation and incorporating various functionalities like electrical properties, EMI/EMC can be easily done.

This technology offers possibilities to realize ground based, naval as well as aerospace structures with high product quality and lower cost. Civilian and military naval structures from boats, ship hulls etc are the most logical target applications. Wind energy, automotive industries can benefit from this technology.