

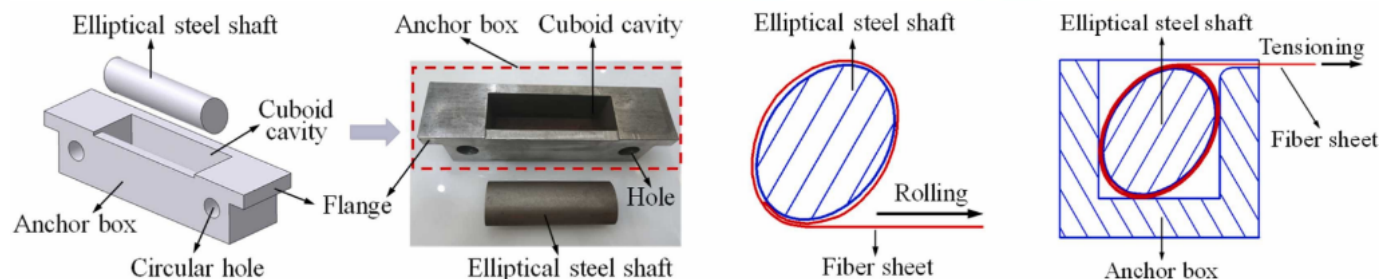
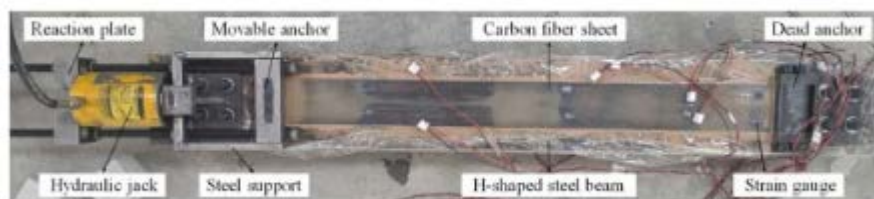
Technology in Brief

The growing need for structural repair and rehabilitation has led to the adoption of **Fibre Reinforced Polymer (FRP) composites** due to their high strength-to-weight ratio and corrosion resistance. While conventionally applied as externally bonded laminates, **only 30–35% of their tensile strength** is typically utilized because of premature debonding from concrete surfaces. To enhance effectiveness, a **pre-stressing technique using Carbon FRP (CFRP) laminates** has been developed. This involves an **innovative mechanical anchorage system** that allows direct jacking and anchoring onto RCC structures, enabling active engagement of the FRP's full tensile capacity.

This advanced method improves **load-bearing performance, serviceability, fatigue life, and durability** of structures. It also minimizes structural deformation, delays cracking, and ensures longer-lasting repairs—all with minimal equipment and installation time. Pre-stressed CFRP thus offers a reliable and efficient solution for modern infrastructure strengthening.

Salient features/Advantages

- High Strength-to-Weight Ratio.
- Efficient Use of Material.
- Innovative Mechanical Anchorage.
- Enhanced Structural Performance.
- Crack Control.
- Corrosion and Weather Resistance.
- Quick and Simple Installation.
- Improved Fatigue Life.
- Eco-Friendly Solution.



(a) Anchor diagram and photograph

(b) Wrapping method

(c) Section diagram

End Product(s)	Prestressed CFRP laminate system for enhanced structural strengthening and rehabilitation of concrete structures.
License/Commercialization	M/s. DGC Infrastructure Pvt. Ltd., A-3027, Oberai Garden State, Andheri (E); Mumbai- 400072
TRL	07
Environmental Impact	Enhances sustainability by extending structural lifespan, reducing construction waste and conserving natural resources.
Setup - Equipment required	Requires hydraulic jacks, mechanical anchorage systems, CFRP laminates, epoxy adhesive and surface preparation tools.