Reliance
Industries Limited

COMPOSITE SOLUTIONS FOR SUPERIOR STRUCTURES

RELINFORCE™
carbon fibre wrap

ABOUT RELIANCE

Reliance Industries Limited (RIL) is India's largest private sector company. This Indian conglomerate, headquartered in Mumbai, Maharashtra, was founded in 1966 by late Padma Vibhushan 'Shri Dhirubhai Ambani', and is one of the prestigious and largest organization in India diversified into various businesses across the globe like energy, textiles, oil & gas, petrochemicals, telecommunication, retail, media & entertainment, advanced materials & composites etc.

It is India's largest and most profitable private sector company. In fact RIL is the first private sector company from India to feature in Fortune's Global 500 list of 'World's Largest Corporations' – currently ranking 96th. It stands 53rd in the 'Forbes Global 2000' rankings for 2020 – the top-most among Indian companies. RIL ranked among LinkedIn's 'Top 25 best workplaces to grow your career in India' (2021).

RELX™
COMPOSITES

Welcome to RelX™, the advanced composite materials brand from Reliance Industries Ltd. RelX™ makes and utilizes Fibre Reinforced Polymer (FRP)—Glass Fibre Reinforced Polymer (GFRP) and Carbon Fibre Reinforced Polymer (CFRP) composites in a wide range of customized industrial applications for sector-specific clients. Our operations include designing, manufacturing, commissioning and marketing state-of-the-art composite solutions. We offer a wide range of products from standard shapes to the most challenging solutions, including custom fabrication and installation that can cater to the emerging needs of various industrial segments.

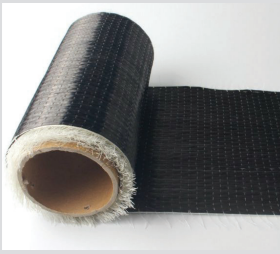
- Defence
- Aviation
- Ship building
- Automobile
- Roads & Infrastructure
- Construction & Disaster Management
- Industrial & Municipal piping
- Electrical & Electronics
- Telecommunication

More importantly, our composites are made at the world's most revolutionary FRP/GFRP/CFRP composite manufacturing facility, that is Vadodara Composites Division. This helps us become a single point contact encompassing conceptual design, developing prototypes, testing, manufacturing, logistics support, installation and after sales services; to ensure complete customer satisfaction.

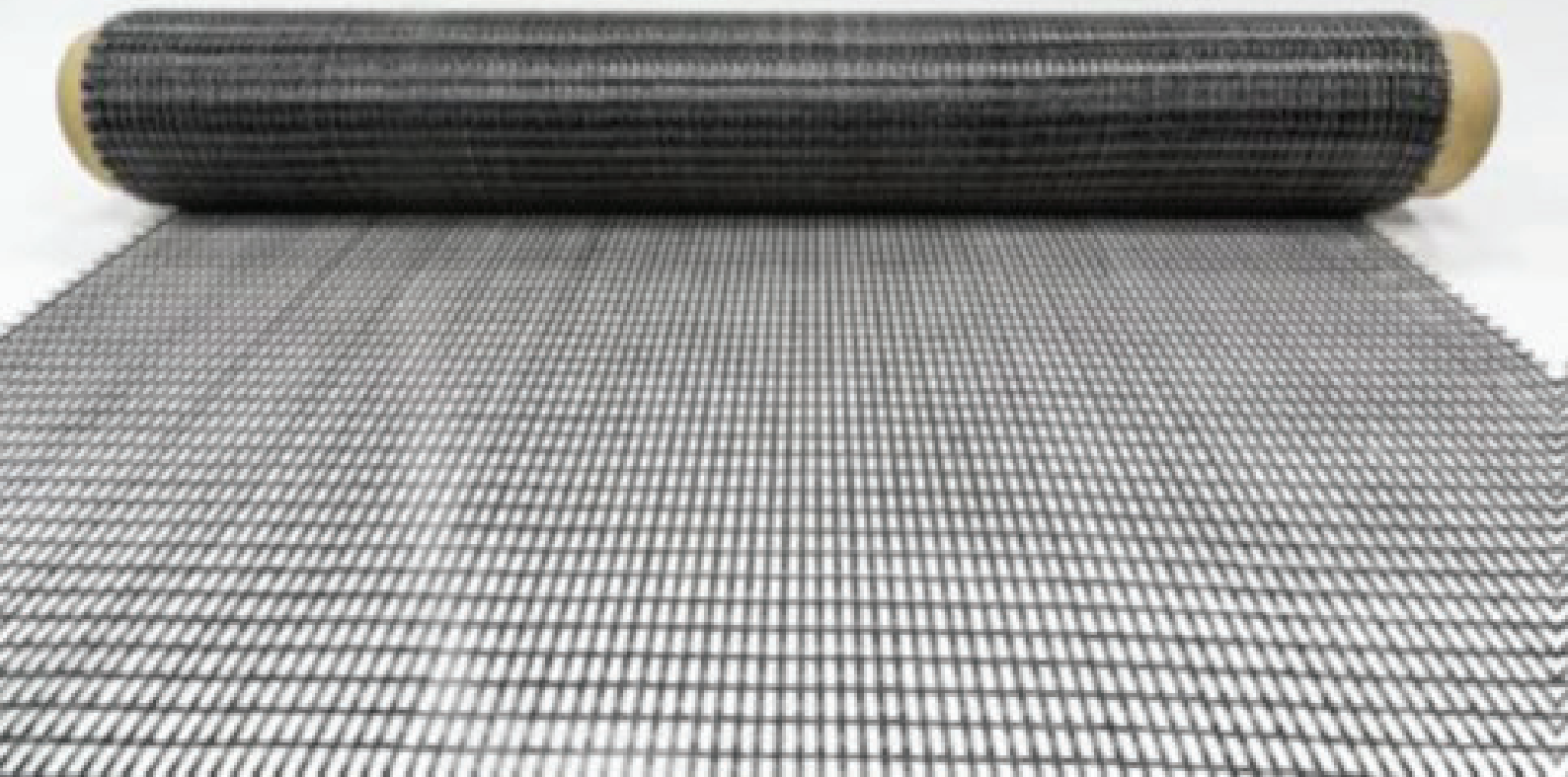
INTRODUCING

RELINFORCE™
carbon fibre wrap

Changing social needs, upgrading of design standards, increased safety requirements and deterioration result in existing reinforced/pre-stressed concrete structures such as buildings, bridges as well as pipelines to be strengthened. This strengthening of defective members is usually accomplished by construction of external reinforced concrete or shotcrete jackets, by epoxy bonding of steel plates to the tension faces of the members, or by external post-tensioning. An alternate technique involves the replacement of steel plates by Fibre Reinforced Polymers (FRP) in the form of thin laminates or fabrics.



Relinforce™ is a range of Fibre Reinforced Polymer system for structural strengthening & protection of the structural members and pipes using Carbon wrap technology.



RELINFORCE™ carbon fibre wrap

SYSTEM – COST EFFECTIVE TECHNOLOGY

Relinforce™ System is a cost-effective and innovative solution for restoring the world's infrastructure. It doesn't just repair degraded structures, it makes them stronger than original. It makes jetties and bridges, pipeline etc stronger. It can also enhance resistance of structures against seismic forces. Unlike traditional retrofit or reconstruction techniques that require demolition and reconstruction of part or whole failing structures, Carbon wrap goes right over the existing substrate. This minimizes disruption during repair and saves significantly on installation time and costs. Applied in the form of a flexible fabric during installation, it is then saturated with a resin matrix, allowing it to harden to a very strong material with a strength-to-weight ratio that exceeds forty times that of steel.

RELINFORCE™ carbon fibre wrap

A MATERIAL WITH UNIQUE FEATURES.

- High strength with low weight
- Minimal change to structure's shape, weight or appearance
- Corrosion resistance
- Thermal compatibility
- Flexible wrap allows tailoring to desired shape
- Excellent fatigue behaviour
- Faster repair than conventional methods
- Welding and heavy equipment not needed
- Minimal disruption and noise during preparation or installation
- Low total cost

OUR DIFFERENTIATOR

- End to end offering: includes design, materials, installation (with our partner)
- In-house resin manufacturing capability
- Consistent quality of carbon and glass fabric
- In-house capability to offer tailor-made solutions
- Availability of in-house design team – Material Engineering Centre for bridging the gap between chemistry and application
- Application Development Centre to cater customised and specific needs.

Benifits of MEC and ADC

MEC

- Structural design & development
- Load path investigation for design
- Industrial design, new concepts in reinforcement
- Strengthening of metal/concrete pipes (with & without leak conditions & internal/external rehab)
- Strengthening of RCC columns/piles and steel beams/structures
- Strengthening of pre-stressed concrete beams

ADC

- Design and development of customize solutions as per client needs
- Replication of application from lab scale to actual site conditions
- Equipped with proper instruments and standards for requisite testing
- Team of experts having hands on experience in handling various chemistries viz epoxy, vinyl ester, phenolic, polyester and other thermosets

PIPE STRUCTURE

REINFORCEMENT USING RESIN IMPREGNATED CARBON FABRIC

Round steel pipeline is mainly aimed for economical transmission of liquid and gas. Corrosion and mechanical damage cause defects such as grooves, thinning, holes, pitting etc. affecting the reliability and durability of pipeline.

Relinforce™ product lines can be used to strengthen dilapidated pipes to take the designed internal and external loads with the use of carbon wrap technology. Relinforce™ system comprises of high-strength carbon fabric fully saturated with an appropriate resin system or precured laminates to provide required additional strength to existing pipe.

INDUSTRIAL INFRASTRUCTURE

STRENGTHENING USING RESIN IMPREGNATED CARBON FABRIC

The foundation of a modern economy is a robust Industrial Infrastructure which mainly includes concrete structures in plants as well as offices. Due to excessive load, exposure to toxic environments & abuse, these structures get deteriorated with time. This creates an ultimate necessity for restoration to make the existing structural members safe. Strengthening of defective members is usually accomplished by construction of external reinforced concrete or shotcrete jackets. An alternate technique involves the strengthening by Fibre Reinforced Polymers (FRP) in the form of thin laminates or fabrics.

Taking into account the limitations and potential challenges of conventional method of strengthening, Relinforce™ product lines can be used to rehabilitate and strengthen the damaged or deficient concrete structures to take the designed loads with the use of carbon wrap technology. Relinforce™ system comprises of high-strength carbon fabric fully saturated with an appropriate resin system or precured laminates to provide required additional strength to any damaged structure.

BRIDGE & JETTY STRUCTURES

REINFORCEMENT USING RESIN IMPREGNATED CARBON FABRIC

Increasing focus and emphasis on the sustainability of existing infrastructure, increased safety requirements, and deterioration due to environmental effects require existing reinforced concrete structures such as bridges and jetties to be strengthened.

Relinforce™ product lines can be used to rehabilitate and strengthen the damaged or deficient concrete structures to take the design loads with the use of carbon wrap technology. Relinforce™ system comprises of high-strength carbon fabric fully saturated with an appropriate resin system and precured laminates to provide required additional strength to Jetty & Bridge structure.

Relinforce™ Range of product offer an engineer a wide range of options combined with outstanding combination of properties, such as low weight, immunity to corrosion, excellent mechanical strength and stiffness to tackle the issues on hand with ease.

OUR WIDE RANGE OF PRODUCTS CATERING TO YOUR NEEDS

- Glass Fabric Reinforced Polymer System
- Carbon Fabric Reinforced Polymer System
- Pre-cured Carbon Laminates & Reinforcement Bars
- Carbon Grid Reinforced Cementitious System
- Composite Solutions for Primary & Secondary Containment Areas of Chemicals

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RELIANCE
PETROCHEMICALS
Chemistry for smiles

RELX COMPOSITES

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