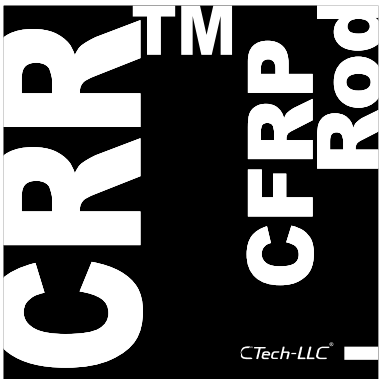
Technical Data Sheet
TDS-296-01996

CRR™

Pre-manufactured Composite Carbon Resin/Rods

Building & Transportation | Oil, Gas & Industrial | Offshore & Onshore | Water & Wastewater



PRODUCT DESCRIPTION

CTech-LLC® Carbon FRP Rod (**CRR™**) is a family of high strength, pre-manufactured composite carbon/resin rods. CRR™ is used as internal or external reinforcement providing additional strength and stiffness to concrete and masonry structural elements. As a component of FibraOne™ FRP strengthening system, CRR™ rods are utilized for a technique known as "Near Surface Mounted" or NSM reinforcement.

ADVANTAGES

- CRR™ rods can be effectively anchored into adjacent members.
- Non-corrosive.
- Light-weight.
- High-strength.
- Low impact on member appearance and aesthetically pleasing.
- Increasing in-plane or out- of-plane bending capacity of masonry wall.
- Effective topside reinforcing product for slabs and beams.

TECHNICAL DATA

Primary Fiber Direction	0 Degree (Unidirectional)
Fiber Type	Carbon
Matrix Type	Epoxy Vinylester Resin
Fiber Volume Fraction	70%
Tensile Strength	2,068 MPa
Modulus of Elasticity	131,000 MPa
Elongation at Break	1.58%

TYPICAL USES

CTech-LLC® CRR™ is especially attractive for strengthening of surfaces that could be subject to abrasive or mechanical damage, such as parking decks, slabs and walkways. For masonry structures, the CRR™ rods can be installed in the existing joints, thus upgrading the capacity without negative aesthetic impact.

DESIGN

Design calculations shall be made and sealed by a licensed, independent engineer knowledgeable with the design of FRP strengthening systems.

INSTALLATION PROCEDURE

SURFACE PREPARATION

Integrity of the surface concrete should be checked prior to installing the CRR™ rod. Corrosion of internal steel reinforcement should be adequately addressed prior to installing the CTech-LLC® product. Make grooves onto the surface of the concrete element. Minimum groove width and depth is 1.5 times the rod diameter. Groove surfaces must be clean and sound. It must be dry and free of frost.

CUTTING CRR™ COMPOSITE CARBON ROD

CRR™ Rod can be cut to appropriate length using a reciprocal saw with a fine tooth blade, grinder or wall chaser tool.

APPLICATION

The CTech-LLC® CRR™ rods are bonded in the grooves, below the surface, using applicable adhesive resin and/or putty

PHYSICAL PROPERTIES

	CRR™6	CRR™8	CRR™10	CRR™12	CRR™16	CRR™20	CRR™25	CRR™28	CRR™32
Rod Diameter	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm	25 mm	28 mm	32 mm
Design Area	30 mm^2	51 mm^2	80 mm^2	115 mm^2	201 mm^2	314 mm^2	491 mm^2	616 mm^2	805 mm^2

filler.

STORAGE & SHELF LIFE

- Store out of direct sunlight in a dry place between 5°C – 35°C
- Store rods in original packaging until ready to use. Keep dry and free from dust and oil.
- Shelf life is 10 years.

CAUTION

All components of FRP systems may cause skin irritation and sensitization. Use of chemical resistant gloves is recommended. Avoid breathing vapors and dust. Get medical attention if you are breathing with difficulty. Resins products can cause strong eye irritation. Avoiding eye contact and Using safety goggles is necessary.

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