



## BasaFlex™ BFRP Rebar



**BasaFlex BFRP Rebar** is a sustainable, rust proof alternative to traditional steel reinforcement. Comparatively, it's only 25% of the weight of steel, and has a Specific Tensile Strength that is 2.5 times greater! This equates to enhanced Jobsite Safety, with significant savings in transportation and handling costs.

BasaFlex is made from volcanic rock, and has a Coefficient of Thermal Expansion similar to concrete. This homogeneous behavior reduces the cracking mechanism during extreme temperature fluctuations and / or concurrent disparity.

BasaFlex is Engineered to last for >100 years, and an excellent choice when considering continuous reinforcement that will never rust, or require long-term maintenance costs. Unlike steel or other FRP's, BasaFlex is completely impervious to attacks from alkali, chemicals or water.

### Non-Corrosive Benefits

- No added maintenance cost during the service life of the structure, unlike steel and other FRP's.
- Reductions in the overall concrete cover (*usually required due to degradation from steel corrosion*) can now be considered.
- Similarly, expensive waterproof sealants, coatings and/or special concrete additives are no longer necessary to resist or prevent steel corrosion.
- Even chloride contaminated concrete constituents, such as water (saltwater) and aggregates, as well as chloride-based accelerators and cement without chloride limits can now be used without detriment.



### Typical Applications

#### Concrete Containment Structures

- Waste Water Treatment Facilities
- Swimming Pools; Petro Chemical Tanks

#### Concrete Exposed to De-Icing or Marine Chlorides

- Bridges & Railings; Median Barriers
- Parking Structures
- Continuously Reinforced Concrete Paving
- Precast Elements; Sea Walls; Dry Docks; Port Aprons

#### Reduced Weight in Architectural Elements

#### Masonry Strengthening

- Seismic, Wind or Blast Strengthening
- Strengthening for "Event & Cycle Loading"

#### Tunneling & Mining

- Sequential Evacuation or MATM Tunneling
- Temporary Reinforcement; Rock Bolts

#### Concrete Exposed to High Voltage and Electromagnetic Fields

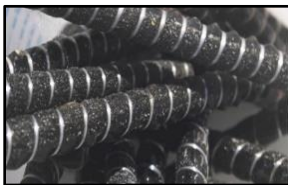
- High Voltage Substations; Radio Frequency Sensitive Areas
- Hospital MRI Areas, Cable Ducts and Banks
- Aluminum Smelters and Steel Mills

## APPROVALS & GOVERNED USE:

BasaFlex is a completely approved reinforcement product according to ACI 440R-07 covering Basalt, Glass, Carbon and Aramid FRP's. It's used as per ACI 440.1R-06, and its construction use is dictated by Code 440.6-08, and tested according to ASTM D7205, and 5 other ASTM methods; demonstrating BasaFlex exceeds all performance requirements of ACI 440.6-08.

BasaFlex can be placed to meet code requirements (or equivalent) by using the calculations and installation guidelines for BFRP reinforcement of concrete as defined in ACI 440.6-08. Recommendations for maximum deflection and shear of concrete elements reinforced with FRP rebars are presented in ACI 440.1R-06, and specified by 440.5-08.

The use of BFRP is further Approved under the ICC Evaluation Service, Acceptance Criteria for Fiber-Reinforced Polymer (FRP) Bars, for Internal Reinforcement of Concrete Members [AC454] dated June 2016.



### ASTM Standards

- D570 Standard test method for water absorption of plastics
- D619 Standard practice for conditioning plastics for testing
- D695 Standard test method for compressive properties of rigid plastics
- D790 Standard test method for flexural properties of unreinforced and reinforced plastics
- D792 Standard test method for density and specific gravity
- D2734 Void content of reinforced plastics
- D3410 Standard test method for compressive properties of polymer matrix composite materials
- Design Manual: Isis Design Manual #3: Reinforcing concrete structures with fiber reinforced polymers (FRP's)

### Physical Properties

Density	2.63 g/cm <sup>3</sup>
Moisture Content	< 0.1%
Tensile Strength (MPa)*	3000
Elastic Modulus (GPa)*	86 – 90
Elongation at Break (%)	3.5
Filament Diameter (µm)	17
TEX	3000
Application Temp. Range (C°)	-260 – +500

\* *Dependent upon process & diameter*

### Key Values and Benefits

- Stronger, Tougher and Lighter than steel
- Rust Proof; 100+ Year Reinforcement
- Naturally resistant to alkali and acids
- No need for special coating like GFR Rods
- Does not conduct electricity; non-magnetic
- Does not interfere with RF signals
- Easily cut to length with regular tools
- Same thermal expansion coefficient as concrete, and is UV stable
- Optimal for use in harsh environments

#### Disclaimer of Warranties & Limitation of Liability

Seller and Manufacturer do not make any warranty of any kind regarding this product, either express or implied, including without limitation, any implied warranty of merchantability, fitness for a particular purpose, condition, design, or quality. Buyer's exclusive remedy, and the seller's and the manufacturer's exclusive liability for any claims, losses, damages, or injuries resulting from the use of this product, shall be limited to the replacement of the product with respect to which damages are claimed. In no case shall the seller or the manufacturer be liable for direct, consequential, special, incidental, punitive, or indirect damages resulting from the purchase or use of this product. Buyer accepts this product subject to this foregoing disclaimer, and purchases and uses this product at buyer's own risk. No employee, or agent of seller, or the manufacturer is authorized to vary the terms of this disclaimer in any manner.