



» APPLICATION OVERVIEW

Glasforms™ Composite Dowel Bars for Concrete Pavement Construction

Dowel bars are used in concrete road construction to enable load transfer across joints, ensuring smooth and durable pavement performance. When concrete slabs expand or contract due to temperature changes or traffic loads, dowel bars placed across the transverse joints between slabs help distribute the weight and reduce the risk of cracking. They allow for the necessary movement of the slabs while maintaining alignment and minimizing vertical displacement at the joints. The result? More even surfaces, improved ride quality, and extended lifespan of the road.

WHY GLASFORMS PULTRUDED COMPOSITES?

Glasforms is one of the world's most respected brands in pultruded fiber reinforced polymers (FRP) and advanced composites. Our manufacturing capabilities and collaborative solutions-based technical services have been trusted for decades to create specialized and purpose-engineered composite rods, tubes, and custom shapes. Our broad portfolio ranges from fiberglass reinforced electrical insulator rods, poles, and cross arms to carbon fiber composite components for infrastructure repair and sporting goods.

WHY COMPOSITES?

Glass fiber reinforced polymer (GFRP) dowel bars offer advantages over traditional steel or epoxy-coated steel bars:

- **Electromagnetic transparency:** ideal for high-speed toll roads to prevent interference
- **Corrosion resistance:** the GFRP material will not rust or corrode in salt or alkaline environments
- **Light weight:** less than one-third the weight of steel
- **Does not bond to concrete:** eliminates the need for sleeves or grease to allow for expansion and contraction

Glasforms™ composite dowel bars are tested and approved to meet the following requirements:

- ASTM 1356 Glass Transition Temperature
- ASTM D570 Water Absorption
- ASTM 2344 Short Beam Strength
- ASTM 7617 Transverse Shear Strength



TECHNICAL DATA

MATERIAL

Matrix Resin	Fiber Reinforcement	Fiber Content, by Weight (%)
Epoxy	E-CR or E-Glass	>70%

TYPICAL PROPERTIES

Property	Test Procedure	Rod Diameter	
		1.25 in (31.75 mm)	1.50 in (38.10 mm)
Glass Transition Temp (T _g)	ASTM 1356	100°C Minimum	100°C Minimum
Water Absorption 24 hours at 50°C (122°F)	ASTM D570	0.03%	0.03%
Short Beam Strength (ILSS)	ASTM 2344	8,400 psi (58 MPa)	9,200 psi (64 MPa)
Transverse Shear Strength	ASTM 7617	23,400 psi (160 MPa)	24,640 psi (170 MPa)
Traceability	Lot number shall be clearly marked on each package/shipment.		

TYPICAL EQUIVALENT MECHANICAL PERFORMANCE*

Tensile Strength	Tensile Modulus	Flexural Strength	Compressive Strength
ASTM D3916	ASTM D3916	ASTM D790	ASTM D695
110 ksi (760 N/mm ²)	6.0 psi x 10 ⁶ (41 kN/mm ²)	130 ksi (900 N/mm ²)	85 ksi (590 N/mm ²)

* Tests are performed on pultruded coupons made to reflect the same fiberglass content and resin system as the production part.

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