



IntegriCo Composites: Railroad Ties

IntegriCo Composites manufactures and markets an industry leading composite railroad tie engineered using patented composite technology. The Company also licenses its technology for use in a variety of other high performance engineered product applications. IntegriCo's patented technology is ideal for use in applications requiring heavy loading, exceptionally long life, resistance to caustic environments, reduced vibration, noise abatement, environmentally benign impact, and comparatively superior performance and lower effective cost relative to steel, wood, concrete and other composite products. IntegriCo's website is found at www.IntegriCo.com.

IntegriCo railroad ties are made with engineering materials and processes utilizing best practices for quality assurance and control standards. IntegriCo ties have successfully undergone extensive independent performance testing at independent testing facilities including the American Railway Association's world recognized Transportation Technology Center, Inc. (TTCI), www.aar.com, in Pueblo, Colorado.

IntegriCo Composite Railroad Tie Specifications

IntegriCo Composites' tie meets or exceeds all technical properties recommended by the American Railway Engineers Maintenance-of-way Association (AREMA) Committee 30 for composite cross ties.

Property	IntegriCo's Tie	AREMA Standards
Appearance	Matte Black	n/a
Dimensions (in X in X in)	7 X 9 X 102	7 X 9 X (102 or 108)
Weight (lbs)	240	185 - 320
Surface Hardness	5,700	n/a
Density (lbs/ft³)	62	n/a
Modulus of Elasticity, MOE (psi)	240,000	170,000
Modulus of Rupture, MOR (psi)	2,500	2,000
Rail Seat Compression (psi)	2,200	900
Spike Insertion (lbs)	7,100	n/a
Spike Pullout (lbs)	3,500	1,900
Spike Lateral Resistance (0.2" displacement in lbs)	2,500	n/a
CTE (in/in/°F)	1.2 X 10⁻⁵	Max 7.5 X 10⁻⁵

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Design Characteristics

The IntegriCo Composites' tie is a true composite structure integrating desired properties from its various components to generate a tie with exceptional physical characteristics and longevity. The design includes a plastic mixture reinforced by a rectangular wood beam to provide the following benefits:

- Excellent spike retention
- High compressive strength
- Longer life cycle in harsh climates
- Immune to insect infestation
- Fungus and mildew resistant
- High electrical impedance
- Resists rail plate cutting
- Can be installed with existing equipment alongside wood ties
- Provides vibration and noise attenuation
- Reduced maintenance – especially beneficial in critical applications such as tunnels and elevated track
- Resists damage from caustic and corrosive environments
- Excellent gauge retention across the life of the tie

