

Hardfaced Coatings – Bond Strength on Dura-Bar

Hardfaced coatings are effectively applied to Dura-Bar, for many applications such as plungers and pony rods, with excellent bond strength. In support, Extreme Coatings, in St. Petersburg, Florida, performed the hardcoating and then IMR Laboratories, located in Lansing, New York, performed independent testing of bond strength per ASTM 633-13.

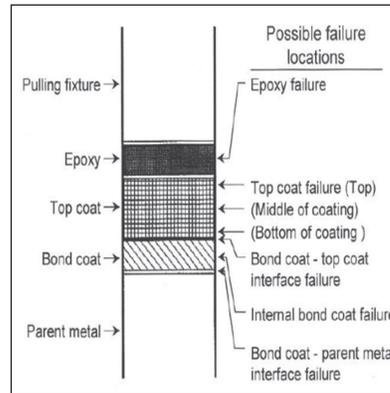
IMR tested samples of Dura-Bar 65-45-12 ductile iron, 1018 carbon steel and 4140 steel, having 2 types of hardfaced coatings and 2 different application methods. See the drawing of the Test Setup at right, and the tables below for the bond bar data and test results.

Sample	Tensile Strength	Load (lb)
Bond Bar	11,800	9,212

Crosshead Speed: 0.04 in/min.

Epoxy: FM1000, Lot# 6248

Method: ASTM C 633-13



Parent Material	Hardfaced Coating	Application Method	Bond Tensile Strength*	Load (lb)	Cross Sectional Area (in ²)	Mode of Failure
4140 Steel	Tungsten Carbide	HVOF	11,641	9,051	0.7776	Epoxy
C1018 Steel	Tungsten Carbide	HVOF	11,414	8,929	0.7823	Epoxy
Dura-Bar 65-45-12	Tungsten Carbide	HVOF	12,080	9,355	0.744	Epoxy
Dura-Bar 65-45-12	Nickel Based Spray Fusible	Flame Spray and Fuse	11,788	9,166	0.7776	Epoxy
Dura-Bar 65-45-12	Nickel Based Spray Fusible	Flame Spray and Fuse	11,453	8,960	0.7823	Epoxy
C1018 Steel	Nickel Based Spray Fusible	Flame Spray and Fuse	11,119	8,680	0.7807	Epoxy
C1018 Steel	Nickel Based Spray Fusible	Flame Spray and Fuse	10,653	8,266	0.776	Epoxy
4140 Steel	Nickel Based Spray Fusible	Flame Spray and Fuse	10,815	8,486	0.7846	Epoxy
4140 Steel	Nickel Based Spray Fusible	Flame Spray and Fuse	10,141	7,901	0.7791	Epoxy

*Bond tensile strength results exceed 10,000 psi minimum in accordance with ASTM C 633-13.

Contact Dura-Bar today to discuss your application and the benefits you can take advantage of.