

FRP Hybrid Steam Manhole Cover Increases Strength While Preventing Burns To Pedestrians & Animals

Product: FRP hybrid cast iron and FRP composite steam manhole covers.

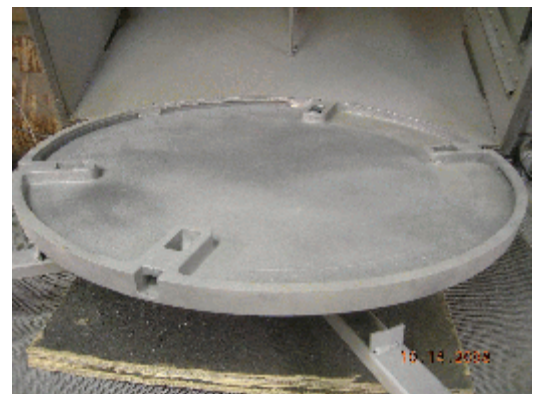
Customer: Energy and Utility Companies

Application: Pedestrian and animal protection from thermal burns. Manhole covers are designed to AASHTO standards for street and sidewalk installations.

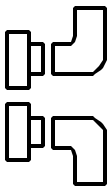
Background: Pedestrians and animals have been burned, and even branded, by all cast iron manhole covers. Industrial Fiberglass has developed a new hybrid cast iron and FRP composite manhole cover that provides protection against thermal burns to pedestrians and animals.

Method and Materials of Construction: A cast iron “dish” is laid-up with FRP composites into the well of the casting to provide an insulating barrier. This reduces the thermal potential for burns.

A proprietary high temperature composite laminate was developed to handle the steam temperatures. And, yet this innovative formulation provides the toughness and resiliency to handle the street and road vehicular traffic.



The Challenges: The hybrid steam manhole covers require a strong bond between the high strength composite laminate and the cast iron dish. Extensive bond tests were performed to check the strength of the laminate and adhesion to the cast iron cover. The final product uses a locking key to enhance the bond of the FRP composite to the cast iron. The end result is a FRP hybrid manhole cover that withstands heavy traffic loads.



Industrial Fiberglass Specialties, Inc.

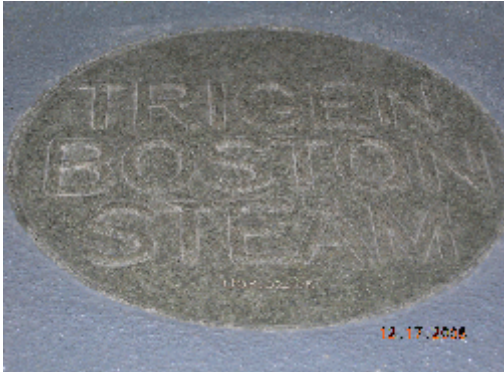
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Case History

FRP Composites Keeps You From Getting Burned

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Customer Benefits: The FRP composite manhole cover surface is non-conductive. In service, the manhole covers must handle 400 F temperature underneath the lids while maintaining a surface temperature of under 170 F.

The hybrid manhole cover offers public protection against heat exposure and burns. To prevent pedestrians slipping, an anti-slip surface finish is applied. The cover can also include the company's

logo. Additionally, the FRP hybrid manhole covers are a deterrent for crime. The combination of cast iron and fiberglass, is not a prime target for scrap thieves. The FRP composite hybrid and cast iron manhole cover provides increased strength.

A test showed the hybrid manhole covers could handle traffic loads of up to 100,000 lbs. (AASHTO standards are only 25,000 lbs). By adding 3/4" of FRP composite laminate, Industrial Fiberglass hybrid manhole covers increased the ultimate traffic strength to 160,000 lbs.

Opportunities: Using a hybrid cast iron and FRP composite steam manhole cover provides both thermal burn protection and enhances in use strength.

