



# 15 / 25 KV Railway Locomotive Roof Solutions





**PRIMARY VOLTAGE TRANSFORMER**

Radiant is a specialist in creating custom Railway Transformer's for the world's leading manufacturing of locomotives. These Transformer's are installed in the rooftop of the locomotives. Tested acc. To these Standards -EN, BIS, IEC, ANSI, UL, SSI, IEEE, DIN, AST

**ROOF FEEDTHROUGH BUSHINGS**


Radiant is a specialist in creating custom Railway bushings for the world's leading manufacturers of locomotives. These bushings are installed in the rooftop of the locomotive. Tested acc. To these Standards – EN, BIS, IEC, ANSI, UL, SSI, IEEE, DIN, AST

**PANTOGRAPH SUPPORT INSULATORS**

Designed for mechanical strength and longevity with resin system giving excellent performance and uninterrupted operation even in a hostile environment. Any roof-side fastening variation is feasible due to the interchangeable base plate. Designed as per requirement with fire and smoke certification according to EN 45545 , UL 94 V0 , ASTM D2303, D495, D2196 ,D229 and others.


**ROOF-SUPPORT BUSBAR INSULATOR**

Pollution resistant insulators that may be installed on any platform roof and be used as a roof-line support or busbar insulator for electric locomotives. Cycloliphatic cast-resin technique and EN45545 approved.




**CABLE CONNECTORS**

Experienced manufacturer of insulation plugs, customised cable end bushings, and termination plugs in all sizes ranging from 12 kv to 170 kv, specialising in small bushings and cable connectors in a variety of formats to meet specific customer requirements.



**HIGH VOLTAGE CABLE WITH PLUG**

Experienced manufacturer of High Voltage Cable with Plug for Locomotives.



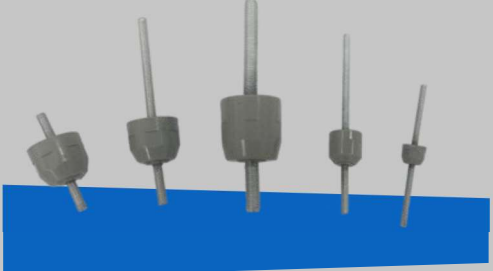
**HIGH VOLTAGE AND MEDIUM VOLTAGE INSULATORS**

Customized insulating parts casted in epoxy that exceed in all quality, durability, and efficiency requirements for bushings and terminals used in high-stress, high-voltage applications.



**MEDIUM BUSHING TERMINALS**

Customized high current bushing and bushing terminals with coated copper for special application in railway technology according to all the accepted industry standards



**LOW TENSION RAILWAY INSULATOR**

Customer-specific low tension insulators which are used in Pantographs, Trolley Busses and small Conductor Rails. Available in various options of inserts and threads, manufactured from Cycloaliphatic cast resin system certified acc. EN 45545, UL 94 V0



**THIRD RAIL INSULATORS**

Outperforms ceramic insulators with use of cycloaliphatic epoxy resin, they can be mounted in same location as existing third rail without structural modifications. Highly adaptable and can be designed according to specific needs. Meet EN 45545 , UL 94 V0 criterias, fire and smoke certifications also available in accordance with ASTM D2303, D495, D2196 ,D229 requirements for specific models.

## MATERIAL

Products made from Polymer Concrete and Epoxy resin, for indoor and outdoor electrical application.

## RE-RESIN

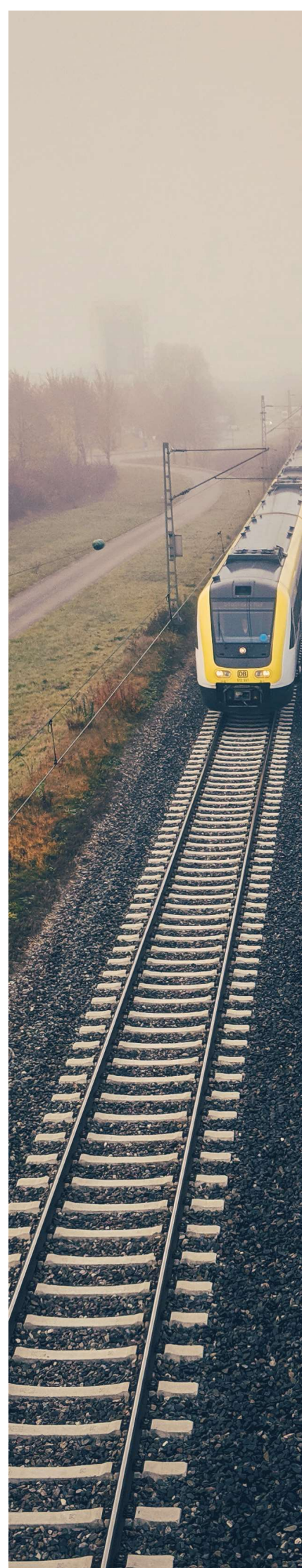
Is an exclusive resin formulation developed with over 25 years of R&D by Radiant which guarantees a better performance than other resin formulations, our clientele and global presence is a testament to the quality of **RE-RESIN**.

### ADVANTAGES OF **RE-RESIN**:

- Suitable for outdoors as it is UV resistant.
- Design flexibility due to metal part moldability and high strength.
- Excellent mechanical & electrical properties.
- Very good impact, shock and vibration strength.
- Very Good Freeze – Thaw properties.
- Minimal moisture absorption.
- Durability that reduces typical breakage from shipping, storage and installation
- Cracks do not propagate like Ceramic during impact.
- Not eaten by birds.

**RE - RESIN** has been globally tested to attain universal acceptance.

- ERDA (Electrical Power & Research Institute)  
Various Electrical, Mechanical & Physical Tests, INDIA
- SGS Testing lab (EN – 45545-2 2013)  
For Fire Protection on Railway Vehicles, CHINA
- VTech –ASTM D229 Method II  
For flame resistance of rigid sheet and plate materials, USA
- UL 94 V0  
for vertical burning test, UL Lab, TAIWAN
- CPRI (Central Power and Research Institute)  
Various critical test for Surge Arresters & Railway applications, INDIA



## RE-RESIN DATA SHEET

	Values	Standards Applicable
Tension strength (MPA)	75- 85	ISO 527
Bending strength (MPA)	125-135	ISO178
Impact Strength (Kj/m2)	10-12	ISO179
Combustibility (12mm specimen)	HB	UL 94
Flame Resistance of Rigid Sheet and Plate Materials	Passed the Test (Ration 1 and Ration 2 <0.642)	ASTM D229 Method II
Thermal Classification	Class F	IEC 60085
Fire Protection on railway applications	Meets Requirements of R23 Specification in HI3	EN45545-2:2013
Flammability-m 50W (20 mm)	Flame rating- V-0	UL 94
Dielectric strength (kV/mm)	18- 19	IEC 60243
Dielectric loss (50Hz, @23°C)	1.5- 2.0	IEC 60250
Volume resistivity (Ω.cm)	> 1015	IEC 600963
High voltage	350min (2500V)	ASTM D2303
Tracking and erosion test	at 50 Hz	IEC 60112
Tracking resistance	>600	
HV arc resistance (s)	185- 195	ASTM D495
Glass transition temperature	>125°C	ISO 11357-2
Coefficient of linear expansion (°C-1)	31- 36 X 10-6	DIN 53752



# TESTING AND QUALITY

Faultless delivery and assured products that have the exact quality standards with help of our state-of-the-art testing equipments.

- Precision dimensional testing
- Bending load testing
- Hydraulic testing

- High voltage & Partial Discharge testing upto 200 kV
- X-ray testing

**X - RAY**  
Testing Facility  
for  
Non- Destructive test



**High Voltage**  
Lab upto 200kV



**Bending Load**  
Testing facility –  
5 Tons



**HYDRAULIC**  
**PRESSURE**



With In-process monitoring, continuous training, rejection records and corrective action plans with implementation ensure that our three-tier quality inspection policy gives flawless supervision across all stages of manufacturing - Raw material, First inspection reports of new parts, in process material and finished product. Including a traceable record accounting for every detail including records of employees working on each product.

## PRODUCTION CAPACITY

35000 sq. ft production space with 9 high-power vacuum material-mixing capable of producing 15 ton of material per day with Single cavity and multi-cavity molds operated by clamping units.

We are equipped with state-of-the-art machinery, a dedicated and experienced work force to produce the best possible products.

# OUR CLIENTS



**ABB** **BOMBARDIER** **ALSTOM**

**A**  
**AREVA**



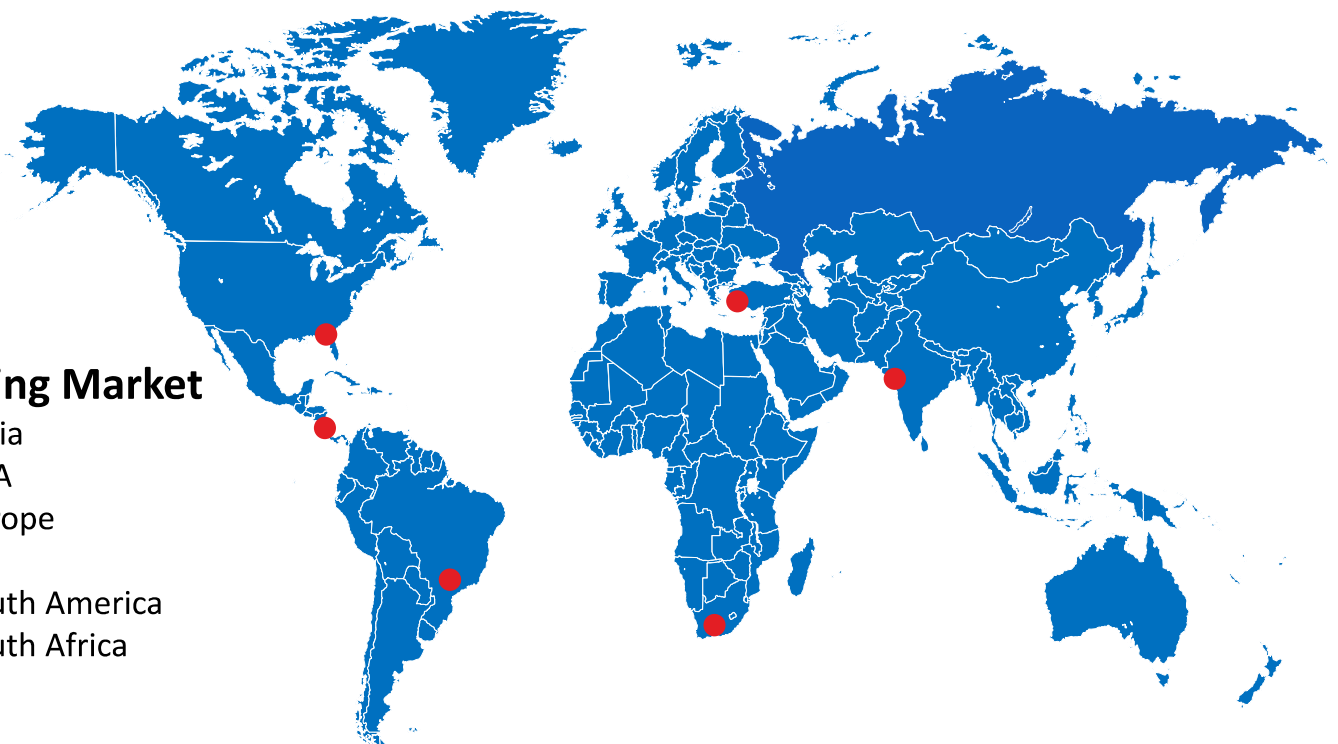
DAIMLERCHRYSLER



## WE EXPORT 80% OF OUR PRODUCE

### Existing Market

- India
- USA
- Europe
- UK
- South America
- South Africa



**IRIS**<sup>TM</sup>  
Certified



**RADIANT  
ENTERPRISES**



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