

CASE STUDY PMA CABLE PROTECTION MULTILAYER RAIL APPLICATION

PMA® multilayer conduits for top-class electrical rail couplings

Global market leader demands unsurpassed performance from all its components

PMA

ABB's innovative PMA® multilayer technology has proven its worth in rail applications.

To protect the various leads and cables which run between the electrical couplings and the coach bodies in train compositions from stone-chip damage, dirt, water, UV radiation, sand, salt water and other environmental influences, era-contact has relied on ABB's PMA cable protection system.



era-contact is a global

market leader
in the field of electrical rail couplings

era-contact GmbH, an aichele GROUP company, is an internationally established, second generation owner-managed enterprise with some 850 employees based at eight sites on four continents. As a global market leader for electrical rail couplings with more than 90 years of experience and as an





Cable protection for leads and cables which
transmit signals
 From electrical couplings in rail applications

innovative system supplier of technical products and solutions in the field of cable assembly, UIC plug connection systems and contact systems, era-contact is firmly established on the world market. As the sole system manufacturer for multiple Ethernet signal transmission, era-contact provides optical Gbit transmission – electrically isolated and wear-free.

Electrical rail couplings are employed in rail vehicles for transmitting signals and power. As a rule, the electrical coupling is achieved by means of automatic and/or semi-automatic central buffer couplings. This allows two or more traction units to be decoupled or coupled together to form a train set without having additional staff working “on the track”. By developing standard types, and due to its modular system, era-contact is in a position to assemble customer-specific solutions rapidly, flexibly and inexpensively.

era-contact’s electrical couplings are universally run underfloor in the area between coaches and are exposed to adverse environmental conditions. They are used for transmitting signals and power in rail vehicles. A range of rail industry compatible PMA products are employed to protect the cables.

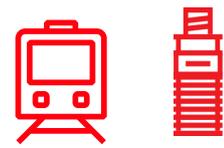
It is in the area between coaches, in particular, that increased performance is required for cable protection systems due to their pliability, durability and bending resistance when subject to alternating stresses.

Varying external temperature characteristics, extreme temperature fluctuations, dynamic movement, alternating bending stresses, dirt, water, UV radiation, stone chip damage and fire protection capacity, require cable protection systems so that they can withstand these influences.

By installing ABB’s PMA multi-layer XPCS and XPCSF conduits, era-contact is relying on products which meet these stringent requirements for dynamic applications.

— Era-contact’s electrical couplings, in conjunction with PMA cable protection systems, help ensure the safe operation of countless train compositions and shunting units worldwide.





PMA® screw connections and

multilayer conduits

for maximum safety and high quality cable protection solutions

This innovative product line for use in rail vehicle construction offers protection and safety for cables and leads in the area between coaches, on bogies, roof installations and in underfloor areas. The multilayer conduits comply with fire protection standards EN45545-2 HL2 according to Requirements Set R22 (XPCS) and EN 45545-2 HL3 according to Requirements Set R22 (XPCSF); and as such they are suitable for use in rail vehicles of all operating and construction classes. This new PMA multilayer technology allows materials possessing product characteristics for the rail sector to be combined in entirely new ways. A conduit composed of two layers made of different materials is produced using an innovative manufacturing process. By combining two specially

The "era4", equipped with PMA cable protection, is a compact coupling which can be installed overhead or underneath (one-part)

modified polyamides with different material properties, this multilayer solution offers additional protection and safety. These new materials are thus able to markedly improve the overall performance of the conduits. According to Heinz Seedorf, Sales Manager at PMA Deutschland: "When used in conjunction with the PMAFIX and the PMAFIX Pro screw connections, this helps ensure an extremely secure and long-lasting cable protection solution for transmitting the electrical coupling signals in the harsh reality of everyday rail operations."

"These PMA® products satisfy our high requirements"

Dipl. Ing. (FH) Clemens Roller, Project Manager and Engineering Product Sponsor at era-contact, adds: "By introducing and moving over to XPCS and XPCSF multilayer conduits with PMAFIX and PMAFIX Pro screw connections, we rely on the experience and testing of the PMA team. Additional project-specific testing then qualifies these types of conduit for our application." The PMA products satisfy the stringent demands of the application. The reliability of the products based on PMA's many years of experience in the rail sector, and their qualification in accordance with the standards are important criteria which speak for PMA. Additional important elements were the ability to carry out testing in PMA's own laboratory and the solution-oriented collaboration when tackling practical problems related to actual projects."





With its PMA cable protection range, ABB provides a comprehensive portfolio of conduits, screw connections and accessories for the most varied markets and applications.

ABB PMA and era-contact

Together, era-contact and ABB PMA represent a partnership with many years of experience in the rail technology sector.

When manufacturing its couplings, era-contact uses more than 400 different PMA rail application products.

era-contact GmbH

era-contact is a global market leader in the field of electrical rail couplings; it sets the standards for UIC plug connectors, cable assemblies and vehicle cabling.

Following acquisition of FABEG's "Electrical Rail Couplings" division (established in Berlin in 1928 as a subsidiary of AEG), era-contact was incorporated into the aichele GROUP in 2000.

At present, it employs a workforce of around 850 at 8 sites on 4 continents.

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