



**PRECISION CIRCUIT PROTECTION —  
WITHOUT THERMAL COMPROMISE.**

## When reliability is not negotiable

In railway systems, circuit protection is directly linked to safety, uptime, and operational stability. Circuit breakers are not just components, they are critical safeguards protecting rolling stock, onboard electronics, signaling systems, and power distribution units.

Railway environments place exceptional demands on electrical equipment. Continuous vibration, temperature variations, and long lifecycle expectations require protection solutions that deliver stable and predictable performance over time.

### **Hydraulic-Magnetic Technology – Built for Railway Conditions**

Unlike traditional thermal circuit breakers, hydraulic-magnetic technology ensures stable and predictable protection independent of ambient temperature.

Hydraulic-magnetic circuit breakers are particularly well suited for railway applications, where equipment must maintain consistent protection behavior across varying environmental conditions. By combining precise magnetic tripping with hydraulic damping, the technology provides accurate performance, reduced sensitivity to temperature fluctuations, and long-term durability under mechanical stress.

Our HY-MAG circuit breakers provide:

- ✓ Full performance from  $-40\text{ }^{\circ}\text{C}$  to  $+85\text{ }^{\circ}\text{C}$
- ✓ Precise and repeatable trip characteristics
- ✓ Consistent protection behavior
- ✓ Compact design for space-efficient installations
- ✓ Long mechanical service life

This ensures reliable protection in demanding railway environments.



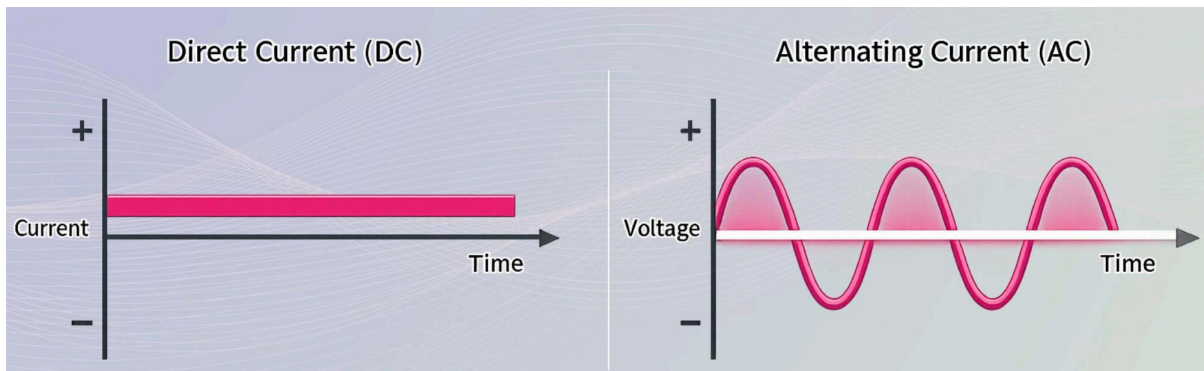
### Why AC vs DC Protection Matters

Modern railway systems rely heavily on DC circuits, supporting onboard systems, control electronics, and auxiliary power functions.

Using AC-rated breakers in DC applications can lead to:

- Persistent arcing / contact welding
- Contact degradation
- Overheating
- Increased failure risk

DC-rated circuit breakers are specifically designed to interrupt DC safely, ensuring protection integrity and long-term reliability across railway electrical systems.



### Engineered for Railway Standards

Our circuit breakers are designed to comply with key railway requirements:

- EN 50155 – Electrical equipment on rolling stock
- EN 45545-2 – Fire protection
- IEC 61373 – Shock and vibration resistance

Compliance with these standards ensures dependable performance under real-world railway operating conditions.

### More Than Components – A Technical Partner

Beyond individual products, we support railway manufacturers and system integrators with customized solutions,

application engineering, and integrated protection strategies. Our focus is not only on delivering components, but on enabling reliable system performance over the full lifecycle.

Our solutions comply with relevant railway requirements and are developed for environments characterized by vibration, temperature variations, and extended lifecycle demands.

 **Contact us to discuss the optimal protection solution for your application.**

Contact us | [www.emcomp.se](http://www.emcomp.se) | [info@emcomp.se](mailto:info@emcomp.se)

Phone 010-168 68 57

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