EWB 154 R
Linear Eddy Current Brake



The linear eddy current brake not only offers enhanced safety levels but also economic advantages. This system operates without contact with the rail and the braking force remains constant even at high speeds.

CUSTOMER BENEFITS

- Independent of track condition and wheel/rail coefficient of adhesion
- No mechanical contact, therefore wear-free
- No impact on TSI infrastructure
- Controllable braking force
- Strong braking force at high speeds
- Functions also as service brake
- No noise, no development of odors

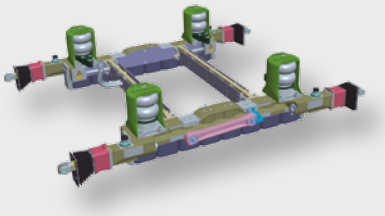
APPLICATIONS

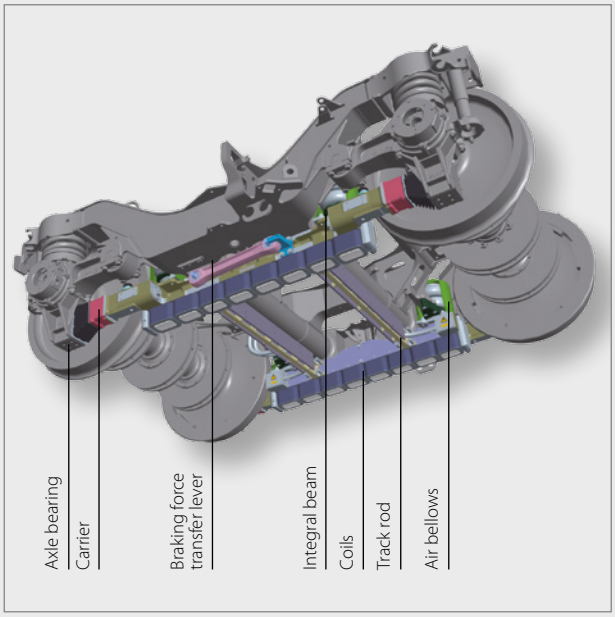
- High-speed trains

KNORR-BREMSE

EWB 154 R

Example of EWB 154 R design applied to the ICE-3 Velaro D





FUNCTION

The brake consists of a magnetic yoke with electrical coils that are positioned along the rail and magnetized with alternating north and south poles.

When the coils are put under current while the brake is not in motion, a symmetrical magnetic field is generated that includes the rail head and exerts a vertical magnetic force (F).

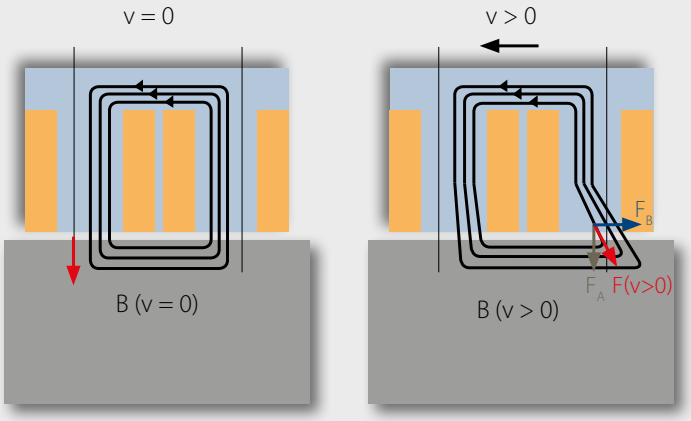
When the magnet is moved along the rail it induces a non-stationary magnetic field in the rail head and generates electrical potential that causes eddy currents. These disturb the magnetic field in such a way that the magnetic force (F) is diverted against the direction of travel.

The horizontal component of this magnetic force is used as braking force (F_B).

TECHNICAL DATA

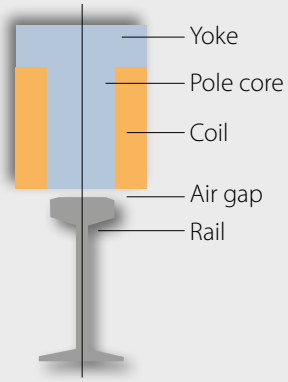
- Braking force at 200 km/h: ~ 21 kN per unit
- Length including end elements: 1540 mm
- Width of magnet: 130 mm
- Height of magnet: 269 mm
- Total weight: 900 kg per unit
- Power requirement: 86 kW per unit

Functioning of linear eddy current brakes:



F ... magnetic force

F_B ... braking force



F_A ... attraction force

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