



Baltimore-Washington Rapid Rail, LLC (BWRR) is a Maryland-based, 100% US-owned company formed to develop the Superconducting Maglev project.

BWRR works closely with its affiliates **The Northeast Maglev (TNEM)** and the **Central Japan Railway Company (JR Central)** to promote the implementation of SCMAGLEV technology in the Northeast Corridor.



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THE WORLD'S FASTEST TRAIN SCMAGLEV

How It Works



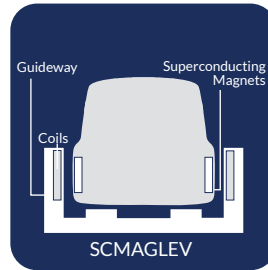
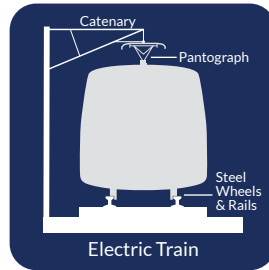
WHAT IS THE SCMAGLEV?



The Superconducting Maglev (SCMAGLEV) is the latest advancement in the world of high-speed ground transportation. This revolutionary system is not your typical train. In development since 1962, the SCMAGLEV is a futuristic magnetic levitation system that uses powerful magnetic forces for all aspects of operation—acceleration, deceleration, guidance and levitation—resulting in operating speeds of over 300 miles per hour in everyday service, and travel times unlike anything traditional trains can achieve.

THE GUIDEWAY

Rather than riding directly on standard steel railroad tracks, SCMAGLEV trains levitate between the walls of a unique concrete structure known as a guideway. The U-shaped guideway has walls surrounding the trains on both sides, making the system free from derailment.



SUPERCONDUCTING MAGNETS AND GUIDEWAY COILS

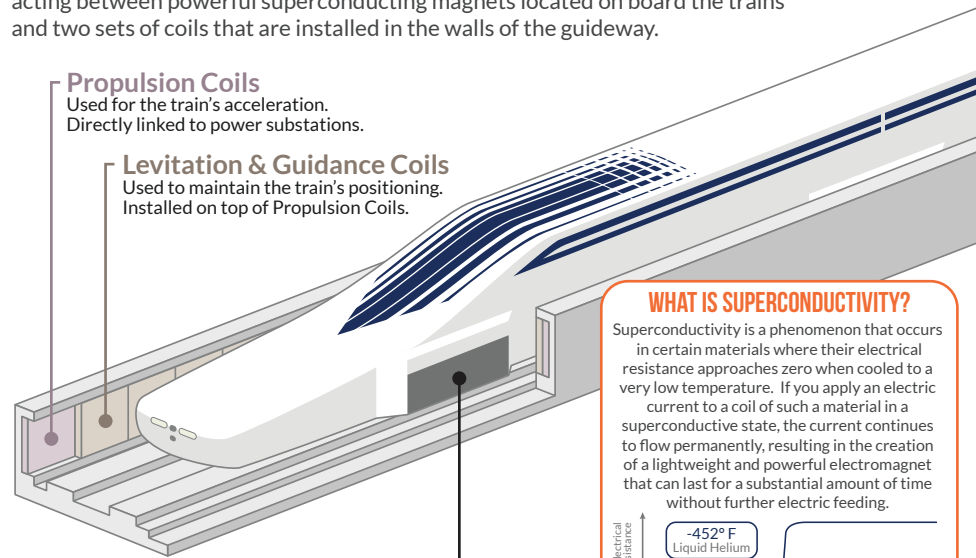
The keys to the SCMAGLEV system's high speed and acceleration are the magnetic forces acting between powerful superconducting magnets located on board the trains and two sets of coils that are installed in the walls of the guideway.

Propulsion Coils

Used for the train's acceleration.
Directly linked to power substations.

Levitation & Guidance Coils

Used to maintain the train's positioning.
Installed on top of Propulsion Coils.

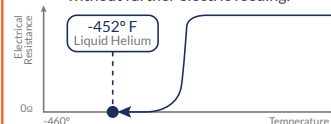


Superconducting Magnets

Strong magnets installed into bogies of each train car. Powerful magnetic forces are generated between the Superconducting Magnets and the guideway coils.

WHAT IS SUPERCONDUCTIVITY?

Superconductivity is a phenomenon that occurs in certain materials where their electrical resistance approaches zero when cooled to a very low temperature. If you apply an electric current to a coil of such a material in a superconductive state, the current continues to flow permanently, resulting in the creation of a lightweight and powerful electromagnet that can last for a substantial amount of time without further electric feeding.

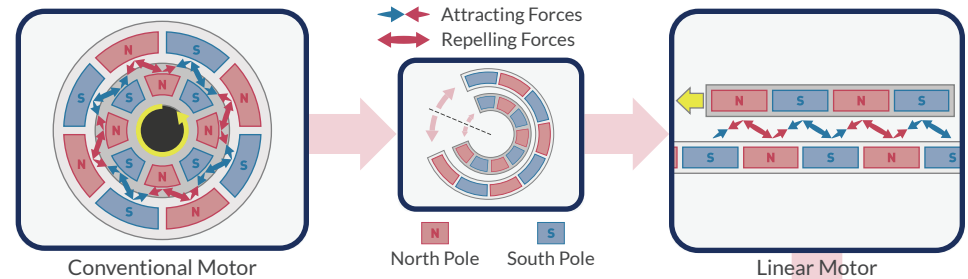


Their light weight and energy efficiency make superconducting magnets critical components of the SCMAGLEV system.

HOW DOES IT WORK?

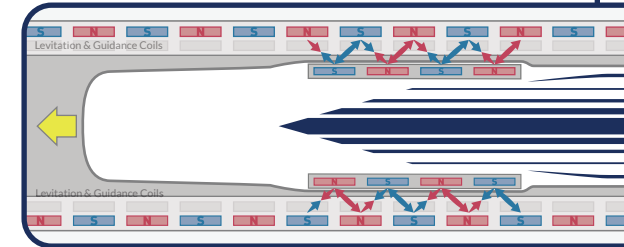
LINEAR MOTOR PROPULSION

Conventional electric motors contain moving parts (rotor) and stationary parts (stator). When electrified by an alternating current, the stator generates a magnetic field with alternating poles. Because the rotor contains magnets with fixed poles, attracting and repelling forces are generated between the stator and the rotor. Those forces cause the rotor to spin continuously around its axis for as long as power is supplied.

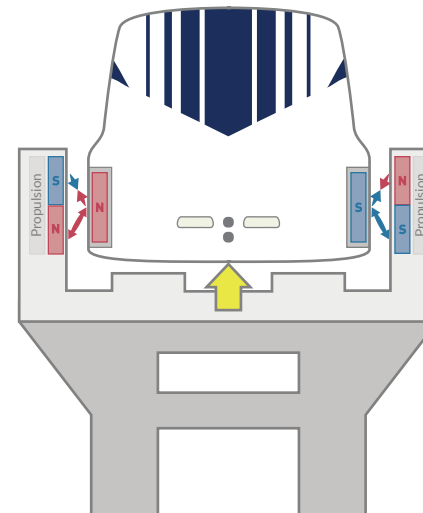


The SCMAGLEV system utilizes a linear motor for propulsion. A linear motor resembles a conventional motor that has been split open and laid out in a line extending down the length of the guideway.

Just like a conventional motor, the SCMAGLEV's linear motor is made up of moving parts (Superconducting Magnets on the trains) and stationary parts (Propulsion Coils), but when current is applied, the train is propelled along the guideway, rather than spinning on an axis.



LEVITATION AND GUIDANCE



SCMAGLEV trains begin by traveling on tires as they are accelerated by Propulsion Coils. Once the train hits a sufficient speed and retracts its tires, an induced electric current begins to flow inside the Levitation & Guidance Coils in the guideway walls, causing them to become electromagnets.

This generates magnetic forces between the coils and Superconducting Magnets, causing the train to levitate inches off of the guideway floor. When levitating, the train makes no physical contact with the guideway.

The combined forces from these coils on both sides of the guideway also naturally maintain the train's horizontal positioning, ensuring that it remains centered between the guideway walls without the need for active control.