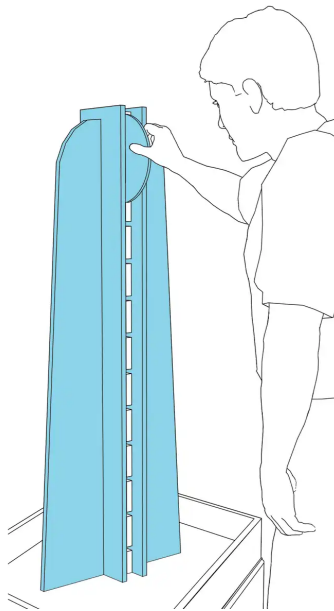


Eddy currents

How does an Intercity Express train brake?



Take one of the disks and drop it between the rows of magnets.

Try to move a disk between the magnets with your hand.

What happens with disks made of different materials?

Few disks fall exactly as expected. But some disks slow down when they fall down. If you pull them down you can feel resistance.

When a metal disk moves into or onto a magnetic field, circular electric currents are generated in the metal. These currents in turn create a force which oppose their cause, the movement through the magnetic field – thus the disks are slowed down. The more conductable a metal is, and the larger the area penetrated by the eddy currents, the stronger the retarding effect. This principle is used in so-called eddy current brakes in Intercity Express trains.