Electromagnets

Answers

1. Could a crane with a lifting magnet lift bronze, brass or copper pipes?

No. The pipes need to be 'ferromagnetic'. Copper alloys are non-magnetic. The pipes in the picture are made from steel, which is an alloy of iron.

2. A magnetic field acts at a distance. It exerts forces without touching. Gravitational fields also do this, but what does a magnetic field do that gravity does not?

The gravitational force is always attractive. A magnetic field can attract or repel a magnet object depending on the direction of the magnetic field.

2. If you bring either pole of a magnet near to a piece of steel such as a nail or a paper clip, it always attracts. It never repels. Can you explain this?

The bar magnet's field induces an opposite pole in the nail. Iron and steel can become temporary magnets just by being close to a permanent magnet.

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