SET OF INDUCTION TUBES
081

CENTRE FOR MICROCOMPUTER APPLICATIONS

https:// cma-science.nl

Short description

The CMA Set of Induction Tubes consists of a transparent plastic tube with coils, an aluminum tube with coils, and set of small magnets. The tubes are of 1-m long and have 6 similar induction coils located at exactly the same positions on both tubes. Coils are connected to each other in series. When a magnet (included) is dropped in a tube, a voltage is induced in coils as it passes through. This induced voltage can be measured via two 4-mm sockets.

The tubes can be used in a number of experiments, for example:

- To measure the induced voltage due to the motion of a magnet falling through a tube.
- To determine the change of magnetic flux in coils during the magnet's fall.
- To investigate the relation between induced in coils emf and the speed of the magnet.
- To determine the distance between the poles of the magnet.
- To illustrate magnetic braking.
- To investigate the terminal velocity of the magnet falling through the aluminium tube.

Check the Teaching Resources provided on the CMA website to find the ready-to-go activities for this set.

Tubes length	100 cm
Plastic tube diameter *Outer:* *Inner:*	 20 mm 16 mm
Aluminum tube diameter *Outer:* *Inner:*	 19 mm 16.5 mm
Number of coils	6
Distance between coils	16.3 cm
Number of turns in a coil	65 turns
Coil length	15 mm
Type of wire	Copper
Diameter of wire	0.2 mm
Connections	two 4 mm connectors for voltage sensor
Magnet size	diameter 12 mm

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