
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.

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

Warranty: The CMA Set of Induction Tubes 081 is warranted to be free from defects in materials and workmanship for a period of 24 months from the date of purchase provided that it has been used under normal laboratory conditions. This warranty does not apply if the product has been damaged by accident or misuse.

Note: This product is to be used for educational purposes only. It is not appropriate for industrial, medical, research, or commercial applications.

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