CONSERVATION of LINEAR MOMENTUM

HFC33



Year 1
study

Features

- Precision Air Track
- Classic Experiment into momentum
- Accurate recording and display of time
- Many parameters adjustable by customer
- Adjustable feet to increase tilt of air track
- Very visual experiment

Description

The HFC33 apparatus consists of a 1.45metre long precision air track manufactured from sturdy lightweight extrusion. A blower forces air down through the extrusion and out through miniature holes running along its length. This creates a ‘cushion’ of air onto which two trolleys can me moved. The air ‘cushion’ creates a near frictionless environment for the trolleys to run on which is crucial in preserving momentum in the Conservation of Momentum theory. The trolleys can be set onto each other in different modes, i.e. one stationary whilst one is moving, both moving towards each other. This allows the momentum before and after to be monitored to see if the conservation of linear momentum has remained. The trolleys can accept additional masses onto them to vary the experimental parameters. The trolleys are projected along the air track by means of a catapult device with buffers installed to stop the trolleys if necessary. Light gates on the track monitor the timing of each trolley and a linear scale allows the distance to be recorded and the timing gate positions to be accurately set. This way the velocity of each trolley can be recorded before and after collisions. The light gates trigger a timer which records the timing during the experiment.

Related Laws/Applications

- Conservation of Linear Momentum
- Timing
- Momentum
- Velocity
- Potential energy
- Kinetic energy
- F = m x a

Learning capabilities

- Observe collisions between two trolleys, testing for the conservation of momentum
- Measure energy changes during different types of collisions
- Classify collisions as elastic, inelastic

Technical Specification

- 2 x Trolley: 120mm long
- 2 x Timing gates
- Event timer range: 1mS to 999,999s
- Event timer: Continuous or start/stop mode
- Track linear scale: 1mm resolution
- Air blower: Flow controlled

What’s in the Box?

- 1 x Air Track
- 1 x Blower
- 2 x Timing Gate
- 2 x Stand
- 1 x Accessory container
- 3 x Power lead
- 2 x Event timer
- 1 x Tape measure
- 1 x Spirit level
- Instruction manual
- Packing list
- Test sheet

Weights & Dimensions

- Weight: 23 kg
- Length: 1450mm
- Width: 300mm
- Height: 250mm

Essential Services

- Sturdy Bench Top

Ordering information

To order this product, please call PA Hilton quoting the following code: HFC33

All brand and/or product names are trademarks of their respective owners. Specifications and external appearance are subject to change without notice. The colour of the actual product may vary from the colour shown in the brochure.
Copyright © 2018 P.A. Hilton Limited. All rights reserved. This technical leaflet, its contents and/or layout may not be modified and/or adapted, copied in part or in whole and/or incorporated into other works without the prior written permission of P. A. Hilton Limited. Hi-Tech Education is a registered trade mark of P. A. Hilton Limited.
COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS