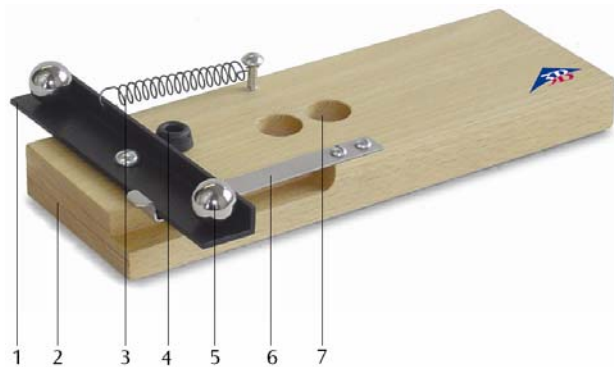


## Free-Fall and Horizontal Launch Equipment U119831

### Instruction sheet

12/07 ALF



- 1 Launch rail
- 2 Base plate
- 3 Spring
- 4 Rubber stopper
- 5 Steel ball
- 6 Trigger
- 7 Ball socket

#### 1. Safety instructions

Projectiles are launched with a large amount of energy.

Be careful that no one is in the way of the balls where they might get hurt.

#### 2. Description

The equipment is used to demonstrate superimposition of vertical and horizontal motion with no external influences.

A launching rail with returning spring is mounted on a wooden base. Two steel balls are used as test bodies. Upon triggering, one ball starts to fall downwards and simultaneously the other is launched horizontally. Both balls hit the ground at the same time. Two holes in the base plate are provided for storing the balls.

#### 3. Technical data

Ball diameter:	15 mm
Dimensions:	200x120x40 mm <sup>3</sup> approx.
Mass:	1 kg approx.

#### 4. Operation

- Place the equipment at the end of a bench such that one of the balls can drop unimpeded to the ground and there is about 2 m of room for the other ball to be launched as a projectile.
- Arm the launch rail using the spring to keep it under tension and set the trigger to keep it tightened.
- Lay the balls in the recesses at the end of the launch rail.
- Hold the base plate firm and still then press the trigger and launch the balls.

Despite their differing trajectories, both balls will be seen to strike the floor at the same moment.

Acceleration due to gravity  $g$  is therefore independent of any movement in the horizontal direction.