

Mirror

Three Cornered



HL2170-001 Three Cornered Mirror

Description:

The IEC **Three Cornered Mirror** is a special purpose reflector with special properties.

It consists of 3x flat pieces of mirror that can be slotted together to form a 3 cornered mirror. When the 3x pieces are slotted together, it can be seen that there are notches provided at the tips of the mirror so a rubber band can be stretched around all 3 notches. When a strong band is applied this way, the 3 cornered mirror will be solidly locked together.

The pieces of material protruding out the rear of the mirror have three functions:

- They are useful to grip when holding a mirror in the hand to face any direction.
- When the mirror is placed on a table, they will support it so that the axis of the mirror is exactly parallel to the table (horizontal).
- If the mirror is positioned to point upwards, the projections from the rear provide the correct points of rest on the table so the mirror faces exactly vertically up.

When three reflective surfaces are placed at 90° to one another in all 3 planes, they behave in a surprising manner. When light is aimed into the mirror at any angle to the mirror axis, the path of the reflected beam from the mirror is always exactly parallel to the path of the original incident ray.

Physical Size: 120mm each side of the triangle

Weight: 140g

Assembly:

The 3 parts are supplied as shown below, as 3 flat pieces that must be slotted together.

When together, the rubber band engages in the 3 notches. See below



NOTE: It is best NOT to remove the backing paper if fitted, from the mirrored piece. Removal of the paper may damage the silvering of the plastic and ruin the mirror.

Interesting Note:

A large mirror of this type was placed on the moon so that, providing a light beam reached the mirror at any angle, there was always a reflection from the mirror directly back to the source of the light beam.

Simple Experiments:

- Close one eye and look into the mirror. What do you notice about the reflection of your viewing eye ?
- If you have access to a laser pointer, firstly make yourself aware of the dangers of looking into a laser beam. Then take a 3 cornered mirror and position it say 10 metres away from you and adjust it to face in your direction. Shine the laser into the mirror and notice where the reflected beam is relative to your hand holding the laser pointer. Maybe use a piece of paper to detect the reflected beam. **Do not look directly at the reflected beam.**
- Go back to the mirror and turn it a few degrees so it is no longer directly facing you. Return to your original position and again, shine the laser into the mirror. Again notice where the reflected beam is relative to your hand.
- Using several different angles on incidence, trace out the path of the laser beam as it reflects from the various mirror surfaces. Try to understand why the reflected beam is always back to be parallel to the incident beam path.

Cleaning:

The material is not glass and is therefore easy to scratch. When cleaning, take care not to scratch the surfaces. Use only a small soft brush or a very soft cloth. Do not press hard on the mirror surface while cleaning.

Designed and manufactured in Australia