Wave Motion Apparatus

Powell's Wave Machine

SW4250-001

Description:

The IEC 'Wave Motion Machine' is a high quality instrument designed to demonstrate the fundamentals of transverse and longitudinal wave motion. A scale placed behind the handle divides the rotary motion into degrees of rotational angle so that the relationship or 'phase' between the rotary and the vertical motions may be studied.

Diameter: 178mm	Height: 51mm	Weight: 170g

Demonstrate Transverse Wave Motion:

The handle, which is at one end of the machine, is rotated to cause a series of cams to rotate. These cams cause a set of 16 vertical rods to rise and fall sequentially as the cams rotate beneath them. Their motion follows that of a Sine Wave since their vertical motion is caused by the circular rotary motion of each cam.

The transverse motion, which is clearly visible by observing the tips of the rods, is a demonstration of the creation of Sine Waves as perhaps created in a ripple tank or in a vibrating guitar string.

Demonstrate Longitudinal Wave Motion:

A set of 8 rods at one end of the machine protrude horizontally through a guide loop and move in a longitudinal motion relative to one another. This longitudinal motion is also Sine Wave.

This longitudinal motion is a demonstration of the compression and extension of the coils of a spring when set into a longitudinal vibration or in the radiation of radio energy from an antenna into the atmosphere.

Important Note:

For the machine to clearly demonstrate the principles of wave motion, it is important that all the rods move up and down freely in their guides. The apparatus has been carefully designed to ensure reliable, quiet and free motion. During transport, it is possible that the metal guide loop can be forced out of position. This will cause the rods to jam but it is easily rectified by moving and adjusting the loop by hand. Be sure the metal guide loop is not bent and is standing vertically so that the rods being guided can move freely inside the guide loop.

Designed and manufactured in Australia