SBP 377
MELDE'S EXPERIMENT

Melde's Electrical Vibrator is a useful apparatus for investigating the vibration of a string or wire under tension. The equipment allows the length of the string and its tension to be varied, in which we have a very precise and fine arrangement. The setup is provided with DC supply, which is applied to an electromagnet. This experiment carried out by the German physicist Franz Melde on the standing waves produced in a tense cable originally set oscillating by a tuning fork, later improved with connection to an electric vibrator. This experiment demonstrates that mechanical Waves undergo interference phenomena. Mechanical waves travelled in opposite directions from immobile points, called nodes. These waves are called standing waves since the position of the nodes and loops (points where the cord vibrated) stay static.

STANDING WAVES IN STRINGS AND NORMAL MODES OF VIBRATION:

When a string under tension is set into vibrations, transverse harmonic waves propagate along its length. When the length of string is fixed, reflected waves will also exist. The incident and reflected waves will superimpose to produce transverse stationary waves in the string. The string will vibrate in such a way that the clamped points of the string are nodes and the point of plucking is the antinode. A string can be set into vibrations by means of an electrically maintained tuning fork, thereby producing stationary waves due to reflection of waves at the pulley. The loops are formed from the end of the pulley where it touches the pulley to the position where it is fixed to the prong of tuning fork.

SPECIFICATIONS :

Structure : A Heavy duty U shape Melde`s Unit with heavy iron base & electromagnet.

Pulley with Stand. : 1 no.

Pan & thread. : 1no.

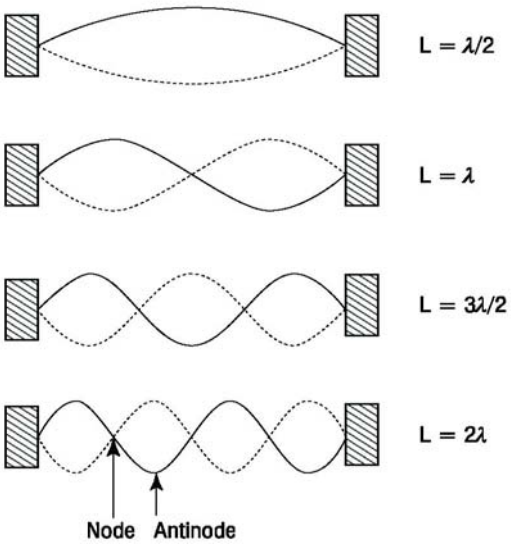
Power Supply : Compatible DC power supply for electromagnet.

Optional :

High Sensitivity Electric Balance.

Fractional Weight.

Measuring Tape.



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