



36853 Chladni Plates for the Mechanical Oscillator

1. Introduction

These two thin aluminum plates of differing shapes provide a platform for standing waves created by the 36803 Mechanical Oscillator.

2. Description

The 36853 Chladni Plates consist of a 20cm diameter circular aluminum disk and a 20cm x 20cm square aluminum disk. Each is mounted at the center to a 4mm banana plug. Also included is a bottle of fine white sand used to indicate the standing wave patterns on the black anodized disks.

3. Theory

When each disk is driven by the 36803 Mechanical Oscillator, standing waves can be established in the disks corresponding to the natural resonant frequency of the disk. As you increase the driving frequency the complexity of the standing wave increases, resulting in more interesting patterns.

When fine white sand is sprinkled on the disk surface, the sand will be "bounced" away from areas on the disk that experience large displacement (anti-node) and move to areas on the disk's surface that are stagnant (node).

Holding the plates at different points on the surface or edge with your fingers will result in asymmetric standing wave patterns.

4. Operation

With the Mechanical Oscillator deenergized and locked, carefully push the banana plug of the Chladni Plate into the driving shaft hole of the Mechanical Oscillator. Sprinkle a small amount of sand onto the surface of the Chladni Plate so that a thin, evenly spread out layer results.

Unlock the Mechanical Oscillator and begin driving it at low power. Slowly raise the frequency of the oscillator until you see the sand begin to “jump” at certain locations on the plate.

Adjust the power gain to the Mechanical Oscillator, as well as the driving frequency, until a crisp pattern results. Vary the frequency and add sand as necessary to see a large range of patterns.

5. Specifications

Round plate dimensions: 20.3cm diameter x 0.08cm thick

Square plate dimensions: 20.3cm x 20.3cm x 0.08cm thick

6. Maintenance

No special maintenance is required for the Chladni Plates. If given reason-



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able care, they will provide years of satisfactory service. Should any difficulty occur that cannot be corrected, contact Central Scientific Company. So that we may serve you best, please do not return the apparatus or any of its parts without prior authorization from Central Scientific Company.

7. Accessories

<u>Description</u>	<u>Catalog No.</u>
CENCO Mechanical Oscillator	36803
Oscillator Amplifier	36891
White Fine Ottawa Sand	38518-01

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