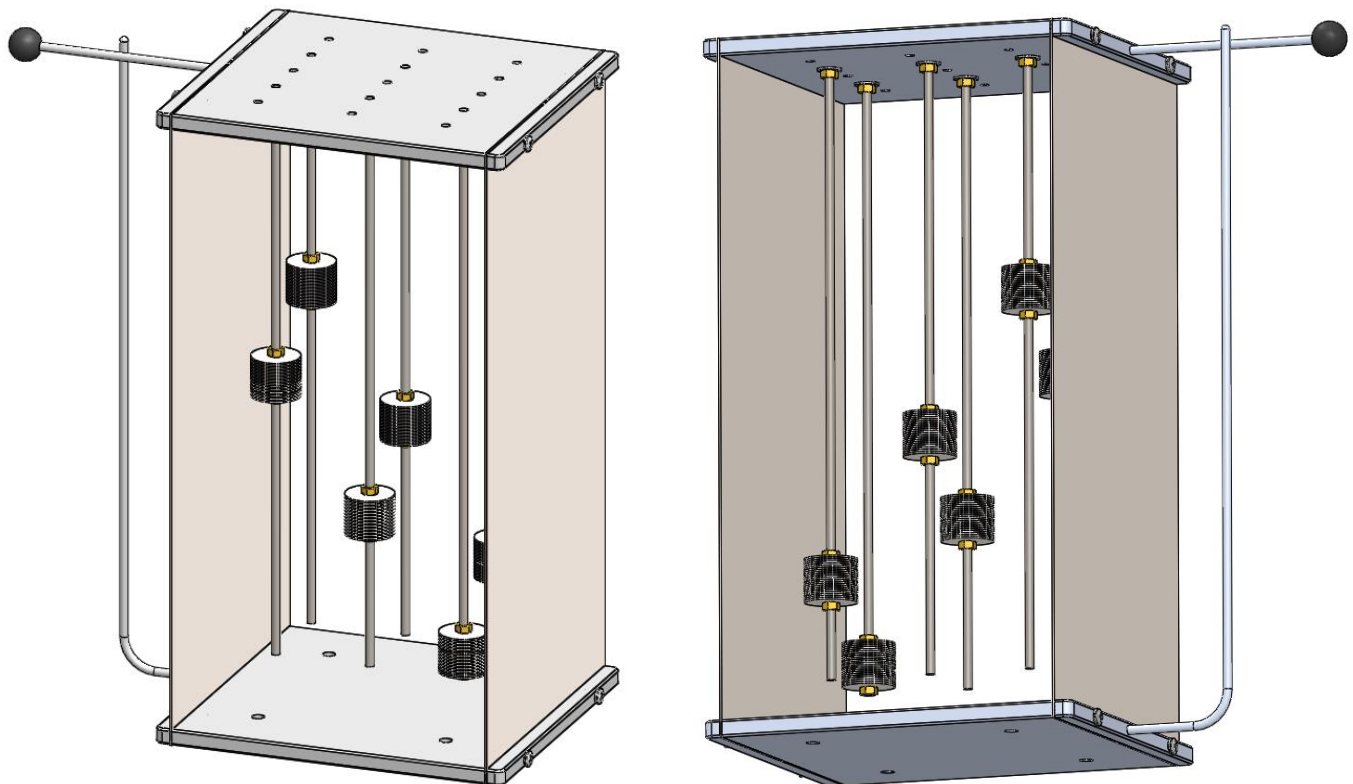


R-101: Low Cost Mechanical Educational Shake Table

The ANCO Model R-101 earthquake shake table is a 1 DOF (horizontal) economical teaching tool for earthquake engineering, vibration, system dynamics, studies and demonstrations.

- Portable, total weight <10 kg, easily mounted to a lab surface, shop table or floor.
- Table top: 25 x 25 cm with tapped hole grid for test item attachment.
- Achieves 0.5 g acceleration with a 2 kg payload.
- Peak displacement of +/- 3 cm.
- Frequency range of operation is 1 to 10 Hz.
- Shake table base has mounting holes to bolt it to a desk, lab table or floor. Alternately, shake table base can also be anchored using a clamp.
- The shake table base can be attached to a client-provided heavy metal plate, which will allow it to be portable. Drawings for the plate are included in the system manual.
- The R-101 is shipped as individual components that can be assembled per manual instructions. Assembly only requires a standard Philips screw driver and takes approximately 20 minutes.
- All components are aluminum or corrosion protected steel.
- Requires no electric power, this is a robust, purely mechanical system.



R-101

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Operating Principle: the user imposes an initial deflection by pulling on the table's handle and then releasing it. The deflection indicator is calibrated so that the approximate resulting acceleration and Richter magnitude is known. When released, the resonant frequencies of the table supports and the resonant frequencies of the oscillators below the table combine in a random but reproducible manner that produces motion similar to real earthquake ground motions. The amplitude of the resulting earthquake can be adjusted by varying the magnitude of the initial displacement. The frequency content and energy distribution of the earthquake can be changed by adjusting the resonant frequencies of the under-table resonators as is explained in the operating manual.

Suggested Applications: A User's Manual is provided that includes five suggested educational experiments and drawings of several educational test structures that possess a variety of dynamic properties. These test structures can be built using such materials as: toothpicks, popsicle sticks, paper, cardboard, plastic or any of several popular building block toys.

The ANCO Model R-101 provides the following educational options to teachers and students:

- Demonstrates the concept that all structures have several modes and resonant frequencies.
- Shows how different types of earthquake motion cause different structural responses, such as, soil conditions or earthquake size and distance.
- Illustrates the nature of structural damping.
- Allows students to compete to build the most earthquake resistant structure according to various design principles and material constraints.
- Demonstrates the effectiveness of proper design versus inadequate design and how small changes can result in large safety margins.
- Demonstrates proper anchorage and safety measures of nonstructural equipment in a home or office.
- Enhances the students' understanding of energy distribution in an earthquake motion and how the energy distribution affects a structure's earthquake response.
- All of these topics are covered by the experiments described in the user manual which also includes quizzes to assess student comprehension.

Please see the ANCO website (www.ancoengineers.com) for a description of other ANCO shake tables with sizes up to 6 x 6 m and up to 6 DOF.