SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Centre of Gravity Apparatus | FrixoDynamics FX-504

Category: Forces and Friction · **Order Code:** FX-504 · **Country of Origin:** India

Product Overview

The SCIENTICO Centre of Gravity Apparatus is a bench-mounted, free-standing experimental unit designed to help students determine the centre of gravity (CG) of flat shapes by experiment and compare results with theoretical calculations. Made by Scientico India, ISO 9001:2015 certified, and supplied with a calibration certificate and operation manual.

View this product online: https://scienticoindia.com/product/centre-of-gravity-apparatus-frixodynamics-fx-504/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Parameter	Specification
Model	FrixoDynamics FX-504
Mounting	Bench-mounted free-standing backboard
Suspension Method	Pin-mounted lamina with plumb bob and thread
Lamina Shapes Supplied	Circle, isosceles triangle, trapezium, L-shape, T-shape, semi-circle (6 total)
CG Determination Method	Plumb bob method, intersection of vertical lines from multiple suspension points
Plumb Bob	1 x plumb bob with thread
Scope of Delivery	1 experimental unit, 6 lamina samples, 1 plumb bob, 1 thread, 1 instructional manual

Key Features

Key Features

- Six lamina shapes supplied, circle, isosceles triangle, trapezium, L-shape, T-shape, and semi-circle, covering both regular and compound geometries
- Plumb bob and thread suspended from the same pin as the lamina for accurate vertical line definition
- Multiple suspension holes on each lamina allow two or more plumb lines to be generated and intersected
- Supports direct comparison between experimentally determined CG and values from calculation or reference tables
- Free-standing backboard requires no wall fixing, bench-mounted and portable
- Straightforward setup with no electrical components or instrumentation required

- Instructional manual includes assembly guidance, experimental procedure, application notes, and example test results

Applications

- Experimental determination of the centre of gravity of regular shapes, circle, isosceles triangle, and semi-circle, with comparison against theoretical values
- Experimental determination of the centre of gravity of compound and irregular shapes, trapezium, L-shape, and T-shape, using the plumb bob method
- Direct comparison of experimental CG results with values derived from calculation or standard reference books
- Demonstration of the relationship between suspension point, vertical line of action of weight, and CG location
- Introduction to the significance of centre of gravity in mechanical design, structural stability, and equilibrium analysis
- Undergraduate laboratory practicals in statics, mechanics of solids, mechanical engineering, and civil engineering

Construction and System Design

The FX-504 is built around a rigid free-standing backboard that provides a stable vertical surface for lamina suspension. A pin mounted on the board serves as the single pivot point from which both the lamina and the plumb bob are hung. Each lamina is supplied with multiple suspension holes positioned at different locations around its perimeter or body, allowing the plumb bob line to be generated from at least two distinct points.

When the lamina is hung from a hole and allowed to settle, the plumb bob hangs vertically alongside it, defining the line of action of gravity through that suspension point. The student marks or traces this line onto the lamina, then moves the lamina to a second hole and repeats the process. The intersection of the two lines is the centre of gravity. For compound shapes such as the L and T laminas, where the CG may lie outside the physical boundary of the shape, the intersection point clearly illustrates this counterintuitive result. All six laminas are of uniform thickness and uniform material density, satisfying the conditions under which the plumb bob method yields accurate results.

Export and Supply Capability

The SCIENTICO FrixoDynamics FX-504 is available for supply to engineering colleges, technical universities, mechanical engineering departments, research institutions, and industrial training centres. SCIENTICO manufactures and exports laboratory equipment to institutions and distributors across multiple regions. Standard packaging is suitable for international shipment. Bulk orders, customised configurations, and institutional procurement enquiries are welcomed. Please contact SCIENTICO directly for pricing, lead times, and shipping terms.

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q1: What is the centre of gravity apparatus used for?

The FX-504 centre of gravity apparatus is used to experimentally locate the centre of gravity of flat laminas of various shapes. Students suspend each lamina from a pin, use a plumb bob to mark the vertical line of action of the object's weight, repeat the process from a second hole, and identify the CG as the intersection of the two lines. Results are then compared with values from standard formulas or reference tables to validate the experimental method.

Q2: What shapes are included with the FX-504?

The FX-504 is supplied with six lamina shapes: a circle, an isosceles triangle, a trapezium, an L-shape, a T-shape, and a semi-circle. The set includes both regular shapes, whose CG positions can be calculated using standard geometric formulas, and compound shapes, where the CG location is less obvious and the experimental method is particularly informative.

Q3: What is the plumb bob method for finding centre of gravity?

The plumb bob method involves suspending a flat object freely from a pin and allowing it to come to rest. A plumb bob hung from the same pin defines the vertical line passing through the centre of gravity of the object. This line is marked on the object's surface. The object is then rehung from a different point, generating a second line. The centre of gravity lies at the intersection of these lines. The method is reliable for objects of uniform thickness and uniform density.

Q4: Can the centre of gravity lie outside the physical boundary of a shape?

Yes. For compound shapes such as L-sections and T-sections, the calculated and experimentally determined centre of gravity often lies in the void area between the limbs of the shape, outside the actual material boundary. The FX-504 demonstrates this directly, as the intersection of the plumb lines falls in an empty region of the lamina. This is an important concept in structural section design and reinforces why the experimental method is a valuable complement to analytical calculation.

Q5: What is included in the scope of delivery for the FX-504?

The FX-504 is supplied as a complete experimental kit including: one experimental unit (free-standing backboard with suspension pin), six lamina samples (circle, isosceles triangle, trapezium, L-shape, T-shape, semi-circle), one plumb bob, one thread, and one instructional manual containing assembly details, experimental procedure, application notes, and example test results.

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