SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Gyroscope Apparatus | FrixoDynamics FX-505

Category: Forces and Friction · **Order Code:** FX-505 · **Country of Origin:** India

Product Overview

The SCIENTICO Gyroscope Apparatus is a self-contained, motorised laboratory unit designed for the experimental study of gyroscopic principles, precession, and the moments generated by rotating bodies. 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/gyroscope-apparatus-frixodynamics-fx-505/



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

Technical Specifications

Parameter	Specification
Model	FrixoDynamics FX-505
Gyroscope Rotational Speed	1,000 – 6,000 rpm
Frame Rotational Speed	0 – 100 rpm
Gyroscope Body Mass	60 – 65 g
Counterweight Radius Range	0 – 95 mm
Number of Motors	2 (independently controllable)
Speed Control	Electronic regulation via control panel
Speed Display	Digital
Protective Cover	Transparent plastic
Power Requirement	Standard power supply (power cord included)
Mounting	Portable table unit
Scope of Delivery	1 experimental unit, 1 protective cover, 1 power cord, 1 instructional manual

Key Features

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- Two independently controllable electric motors for separate regulation of flywheel spin speed and frame precession speed
- Flywheel speed range of 1,000–6,000 rpm and frame speed range of 0–100 rpm for wide experimental flexibility
- Digital speed display on control panel for precise, repeatable experimental conditions
- Adjustable counterweight positioned at radii from 0 to 95 mm, allowing systematic variation of gyroscopic moment
- Transparent plastic protective cover provides full visibility of the gyroscope mechanism during operation
- Portable, self-contained table unit, requires only a standard power supply, no special installation
- Suitable for both demonstration by instructors and hands-on student experiments

Applications

- Experimental verification of the laws of gyroscopic precession
- Investigation of the gyroscopic moment generated by a spinning flywheel under frame rotation
- Study of the relationship between flywheel speed, precession rate, and gyroscopic moment
- Demonstration of the effect of counterweight radius on the balance and moment of a gyroscopic system
- Undergraduate laboratory practicals in dynamics, rotational mechanics, and mechanical engineering theory
- Instructor-led demonstrations of angular momentum and precession principles

Construction and System Design

The FX-505 is assembled on a rigid control box that houses the electronics, control panel, and power supply interface. The main frame sits on top of the control box and carries the gyroscope assembly, a flywheel and its drive motor mounted together as a single rotating unit. The frame itself is driven about a vertical axis by the second motor, creating the precession rotation.

The counterweight is mounted on a metallic rod and can be slid to any radial position between 0 and 95 mm, then fixed in place before the experiment begins. This positional adjustment directly changes the gyroscopic moment, allowing students to observe how moment varies with radius at a constant speed, or how speed must change to maintain balance at a given radius.

Both motor speeds are set via the control panel and confirmed on the digital display before and during operation. The transparent plastic cover is fitted over the entire rotating assembly, securing safely in place without obstructing the view. The complete unit can be placed on any standard laboratory bench and powered from a wall outlet.

Export and Supply Capability

The SCIENTICO FrixoDynamics FX-505 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 a gyroscope apparatus used for in engineering education?

A gyroscope apparatus is used to demonstrate and experimentally verify the principles of gyroscopic precession and the moments generated by a spinning body when its axis is subjected to an external rotation. Students use the unit to measure the relationship between flywheel speed, frame rotation rate, counterweight position, and the resulting gyroscopic moment, connecting theoretical dynamics to observable mechanical behaviour.

Q2: What is gyroscopic precession, and how does the FX-505 demonstrate it?

Gyroscopic precession is the phenomenon where a spinning body, when subjected to a torque about an axis perpendicular to its spin axis, rotates about a third axis rather than tilting in the direction of the applied torque. The FX-505 demonstrates this by spinning the flywheel at a set speed while the second motor rotates the frame about the vertical axis. The resulting precession motion and gyroscopic moment are directly observable and measurable.

Q3: How is the gyroscopic moment adjusted on the FX-505? The gyroscopic moment is adjusted by repositioning the counterweight along the metallic rod to different radii between 0 and 95 mm. Moving the counterweight further from the centre

increases the moment arm, producing a larger gyroscopic moment at the same rotational speed. This allows students to investigate the effect of radius on the gyroscopic moment systematically.

Q4: Are the motor speeds independently controllable on the FX-505?

Yes. The FX-505 is fitted with two separate electric motors, one for the flywheel and one for the frame, each regulated independently through the control panel. The flywheel speed can be set between 1,000 and 6,000 rpm, and the frame speed between 0 and 100 rpm. Both speeds are confirmed on the digital display, enabling controlled and repeatable experimental conditions.

Q6: What is included in the scope of delivery for the FX-505?

The FX-505 is supplied as a complete unit including: one gyroscope experimental unit with dual motors, flywheel assembly, counterweight, and digital control panel; one transparent plastic protective cover; one power cord; and one instructional manual covering operating procedures, experimental methods, and data recording guidance.