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PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Rack and Pinion | ProDynami - 1338

Category: Theory Of Machines · **Country of Origin:** India

Product Overview

The Rack and Pinion ProDynami - 1338 demonstrates how a pinion gear converts rotational motion into linear motion via a rack. This Rack and Pinion apparatus features a 26-tooth, 50mm diameter pinion gear at a 2mm module. It illustrates the mechanism commonly used in vehicle steering systems, offering reduced backlash and improved steering feedback compared to alternatives. The apparatus is supplied as a complete experimental unit with instruction manual.

View this product online: https://scienticoindia.com/product/rack-and-pinion-prodynami-1338/



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

Technical Specifications

Rack and Pinion ProDynami - 1338, Technical Specifications

Specification	Detail
Mechanism Type	Linear actuator, converts rotational motion into linear motion
Pinion Gear	Number of teeth: 26
Pinion Diameter	50mm
Module	2mm

Technical Data

Parameter	Value
Number of teeth on pinion gear	26
Diameter of pinion gear	50mm
Module	2mm

Key Features

Key Features

- **Pinion Gear:** 26 teeth, 50mm diameter
- **Module:** 2mm
- **Motion Conversion:** rotational motion of the pinion translated into linear motion of the rack

- **Mechanical Advantage:** lesser than recirculating ball mechanisms, but with much less backlash
- **Steering Feedback:** greater feedback and steering "feel" compared to alternative mechanisms
- **Automotive Relevance:** commonly found in the steering mechanism of cars and other wheeled steered vehicles
- **Variable Rack Concept:** referenced historical improvement by Arthur Ernest Bishop for high-speed vehicle response, illustrating the design principles behind this Rack and Pinion apparatus

Construction and Design

The Rack and Pinion ProDynami - 1338 consists of a pinion gear with 26 teeth and a diameter of 50mm, at a module of 2mm. The pinion, a circular gear, engages teeth on a linear rack bar. Rotational motion applied to the pinion causes the rack to move, translating rotational motion into linear motion. This arrangement is commonly used in the steering mechanism of cars or other wheeled steered vehicles, providing less mechanical advantage than recirculating ball mechanisms but reduced backlash and improved steering feedback.

Scope of Delivery

- 1 Experimental unit
- 1 Instruction manual

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

Q: What is the Rack and Pinion ProDynami - 1338 used for?
A: It is used to demonstrate how a rack and pinion mechanism converts rotational motion into linear motion, as commonly used in vehicle steering systems.

Q: What is the pinion gear specification?
A: The pinion gear has 26 teeth, a diameter of 50mm, and a module of 2mm.

Q: How does a rack and pinion differ from recirculating ball mechanisms?
A: A rack and pinion provides less mechanical advantage than recirculating ball mechanisms but offers much less backlash and greater feedback or steering feel.

Q: Where is the rack and pinion mechanism commonly used?
A: It is commonly found in the steering mechanism of cars or other wheeled steered vehicles.

Q: Who is credited with improving the rack and pinion design for high-speed use?
A: Arthur Ernest Bishop invented the use of a variable rack, still using a normal pinion, to improve vehicle response and steering feel especially at high speeds.

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