

The Engineering Fundamentals range enables students to gain an understanding of the principles of engineering by the process of learning via experimentation.

The EF-3.3 Additional Mechanisms experiments kit provides students with an introduction to conversion of motion using a Ratchet and Geneva mechanism.

Geneva mechanism

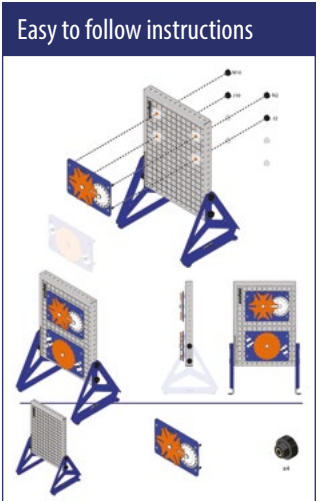


**AN INNOVATIVE HANDS ON MODULAR SYSTEM DESIGNED TO ENABLE INVESTIGATION AND THE UNDERSTANDING OF ENGINEERING PRINCIPLES**

The **Geneva mechanism** is a gear mechanism that translates a continuous rotational movement into intermittent indexed rotary motion, with accurately locked location of the driving component. Such mechanisms are frequently used in mechanical watches, film movie projectors and movie cameras.

A **Ratchet mechanism** allows for continuous linear or rotary motion in one direction while preventing movement in the opposing direction. Such mechanisms are widely used in machinery and tooling such as jacks, hoists, and socket wrenches.

Ratchet mechanism



1 tray supplied with EF-3.3

High quality materials



## Engineering fundamentals system

The modular tray-based system is supplied in conjunction with a multifunctional base unit enabling the student to conduct their own experiments in subjects such as statics, dynamics, mechanisms and kinematics.

Each kit is supplied with a highly visual user-friendly operational guide, allowing the student to understand the theory of the subject by the application of practical experimentation.

### Requirements

### Scale

EF-BU

Experiment tray scale



EF-BU scale



EF-WS scale



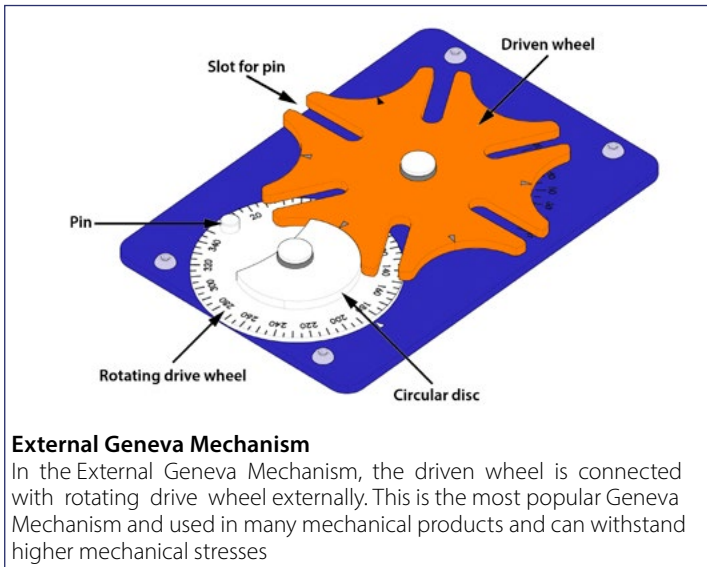
- ▶ EF-BU on which to build the experiment from the tray components
- ▶ Level and stable work surface to mount the EF-BU upon. The optional EF-WS is ideal for this if no suitable desk or bench is available.

### Essential accessories / equipment

- ▶ EF-BU Base Unit

### Experimental content

- ▶ Conversion of motion using the Geneva mechanism
- ▶ Conversion of motion using a ratchet mechanism



#### External Geneva Mechanism

In the External Geneva Mechanism, the driven wheel is connected with rotating drive wheel externally. This is the most popular Geneva Mechanism and used in many mechanical products and can withstand higher mechanical stresses

### Overall dimensions

Tray	
Length	0.430m
Width	0.312m
Height	0.080m
Packed and crated shipping specifications	
Volume	0.02m <sup>3</sup>
Gross weight	5.0Kg

### Features / benefits

#### Features

- ▶ Neatly presented in an easily identifiable and durable storage tray
- ▶ Trays have clear lids making it easy to see their contents
- ▶ Pictorial tray contents list to identify missing components easily
- ▶ Accompanied by a detailed manual with various practical exercises
- ▶ Clear and concise assembly instructions for each experiment
- ▶ Multiple experiments per kit
- ▶ Toolless assembly

#### Benefits

- ▶ Hands-on understanding from lessons
- ▶ Improve the student's dexterity by self-assembly with the instructions provided

### Related products

- ▶ EF-BU Base Unit

#### Statics Experiments

- ▶ EF-1.1 Forces
- ▶ EF-1.2 Moments
- ▶ EF-1.3a Beams
- ▶ EF-1.3b Trusses
- ▶ EF-1.4 Springs
- ▶ EF-1.5 Torsion

#### Dynamics Experiments

- ▶ EF-2.1 Friction
- ▶ EF-2.2 Simple Harmonic Motion
- ▶ EF-2.3 Rotational Friction
- ▶ EF-2.4 Potential and Kinetic Energy
- ▶ EF-2.5 Centrifugal and Centripetal Force

#### Mechanisms Experiments

- ▶ EF-3.1 Cam, Crank and Toggle
- ▶ EF-3.2 Simple Mechanisms
- ▶ EF-3.3 Additional Mechanisms
- ▶ EF-3.4 Bar Linkages

#### Kinematics

- ▶ EF-4.1 Pulleys
- ▶ EF-4.2 Gears
- ▶ EF-4.3 Drive Systems

#### Strength of Materials

- ▶ EF-5.1 Tensile Tester

#### Options

- ▶ EF-WS Workstation

### Ordering specification

- ▶ Geneva mechanism assembly
- ▶ Pawl and ratchet assembly

### Ordering codes

- ▶ EF-3.3 - Additional Mechanisms
- ▶ EF-BU - Base Unit
- ▶ EF-WS - Workstation (optional)

Armfield standard warranty applies with this product

## Knowledge base

- > 28 years expertise in research & development technology
- > 50 years providing engaging engineering teaching equipment

Benefit from our experience, just call or email to discuss your laboratory needs, latest project or application.

An ISO 9001:2015 Company



armfield.co.uk

## Aftercare

Installation  
Commissioning  
Training  
Service and maintenance  
Support: [armfieldassist.com](http://armfieldassist.com)