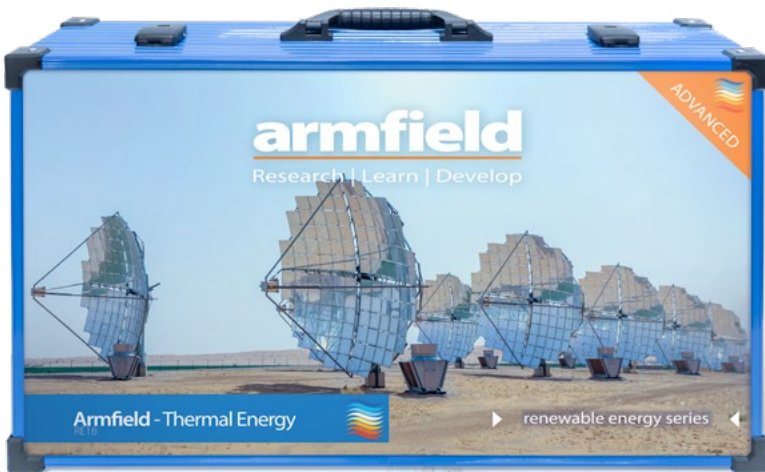


The Armfield advanced renewable energies range is a specialised learning system for the technical education in universities and vocational training centres.

The kits cover Photovoltaic and Wind Energy generation, Fuel Cell and Battery Technology, Thermal Energy and the construction of a controllable Smart Grid on a laboratory scale.



PROVIDES A WIDE RANGE OF EXPERIMENTS INTO THE APPLICATION OF SOLAR THERMAL ENERGY TRANSFORMATION ON A LABORATORY SCALE

“The RE16 Advanced Thermal Energy system provides students with a self-contained modular system, covering the different technologies for solar thermal energy transformation on a laboratory scale.

Included in the system are various solar collector systems (including Parabolic reflector and Absorber tube) which can be operated with or without the supplied pump.

Additionally supplied are CSP-technology (Concentrated Solar Power) and a Peltier element for the direct transformation into electric energy. Experimentation includes basics of thermodynamics, heat exchange, absorption of heat radiation and the convective flow of heat.”

Supplied in an aluminium case



**Features / benefits**

- ▶ Experimentation system for solar thermal energy conversion
- ▶ Quantitative experiments for different collector systems
- ▶ Flexible and location-independent usage
- ▶ Laboratory scale
- ▶ Modular design
- ▶ Supplied in a self-contained aluminium case
- ▶ Includes in-depth manual and predefined experiments

UK office - email: [sales@armfield.co.uk](mailto:sales@armfield.co.uk) tel: +44 (0) 1425 478781 (for ROW)  
USA office - email: [info@armfield.inc](mailto:info@armfield.inc) tel: +1 (609) 208-2800 (USA only)

Issue: 1

URL: <http://www.armfield.co.uk/re>

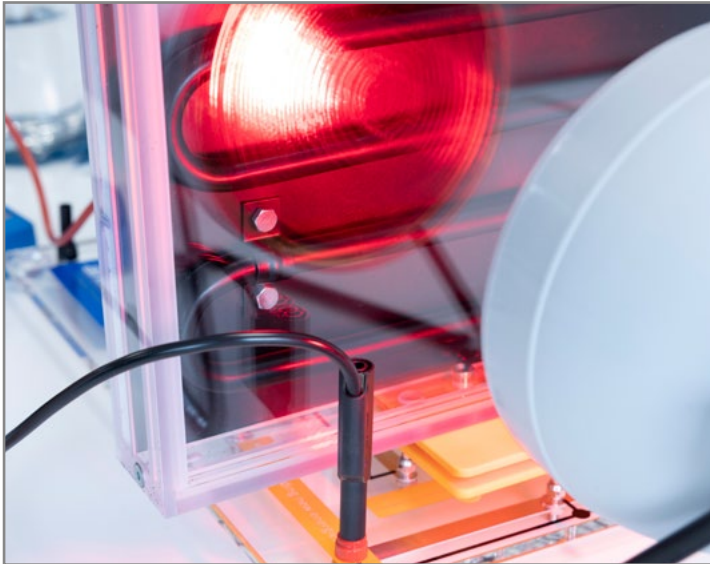
Applications

ME ChE CE IP

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## Experimental content

- ▶ Absorptivity and reflectivity of different materials
- ▶ Focusing of light by a Fresnel lens
- ▶ Thermal convection and layering
- ▶ Thermal conduction
- ▶ Thermal insulation
- ▶ Solar thermal collector with pump circulation
- ▶ Solar thermal collector with thermosiphon circulation
- ▶ Variation of the flow speed
- ▶ Collector circuit with heat exchanger
- ▶ Collector circuit with paraffin heat reservoir
- ▶ Parabolic trough collector with pump cycle
- ▶ Defocussing
- ▶ Qualitative demonstration of the functional principle
- ▶ Investigating the thermoelectric generator
- ▶ Quantitative determination of the electrical power



## Requirements

## Scale

1Ph



**Electrical supply:** 110-230V AC 50-60Hz

- ▶ Level and stable work surface

## Overall dimensions

### Tray

Length	0.640m
Width	0.165m
Height	0.370m

### Packed and crated shipping specifications

Volume	0.038m <sup>3</sup>
Gross weight	8.5Kg

## Related curriculums

- ▶ Renewable Energies
- ▶ Air-conditioning
- ▶ Heating
- ▶ Energy Efficiency

## Ordering specification

- ▶ 1 x Base unit large
- ▶ 1 x Motor module without gear
- ▶ 1 x Solar collector
- ▶ 1 x Parabolic reflector
- ▶ 1 x Absorber tube
- ▶ 1 x Lens module
- ▶ 1 x Absorber module for lens
- ▶ 1 x Absorber B/W
- ▶ 1 x Pump module
- ▶ 1 x Peltier module
- ▶ 1 x Heat exchanger water
- ▶ 1 x Heat exchanger paraffin
- ▶ 1 x Hose-set
- ▶ 1 x Power module
- ▶ 2 x Sorting rubber d=65, mark P
- ▶ 1 x Propeller
- ▶ 2 x Safety test lead, 50cm, red
- ▶ 2 x Safety test lead, 50cm, black
- ▶ 1 x Lamp housing
- ▶ 1 x Bulb infrared 230V
- ▶ 1 x Safety plug, black
- ▶ 1 x Safety plug, red
- ▶ 6 x Safety socket adapter SA 4000 red
- ▶ 4 x Safety socket adapter SA 4000 black
- ▶ 2 x Digital multimeter
- ▶ 1 x Laboratory thermometer
- ▶ 1 x Beaker 250ml
- ▶ 1 x Temperature measuring sensor
- ▶ 1 x Cooling pad
- ▶ 1 x Aluminium case

## Other products in the advanced renewable energies range

- ▶ **RE10:** Advanced Photovoltaic Energy
- ▶ **RE12:** Advanced Wind Energy
- ▶ **RE14:** Advanced Fuel Cell Technology
- ▶ **RE18:** Advanced Smart Grid Technology
- ▶ **RE24:** Advanced Battery Technology

## Operational conditions

- ▶ Storage Temperature: -10°C to +70°C
- ▶ Operating temperature range: +10°C to +50°C
- ▶ Operating relative humidity range: 0 to 95%, non-condensing

## Ordering codes

- ▶ **RE16:** Advanced Thermal Energy

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



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## Aftercare

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