

≡ JACKETED VESSEL WITH COIL AND STIRRER

TD1360D

Shows how a 'jacketed vessel' heat exchanger works and how stirring affects heat transfer.



KEY FEATURES

- One of a set of optional heat exchangers for use with TecQuipment's TD1360V Heat Exchanger Service Module
- Popular type of heat exchanger, used in industry but designed for teaching
- Simple and safe to use – foolproof fittings allow students to change and connect the heat exchanger quickly and easily – needs no tools
- Clear top cover, so students can see its construction
- Jacketed vessel with internal coil and stirrer for batch or continuous heating tests
- Corrosion-resistant materials for use with ordinary clean water at safe temperatures

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DESCRIPTION

This heat exchanger mimics those used in the process industry. It can show heat transfer by using the outer skin (or 'jacket') of the vessel, or by a coil inside the vessel. You can set a continuous feed to the vessel for heating or set a fixed batch for heating. The unit has an extra thermocouple to measure the batch temperature. It also has a motorised stirrer to show how stirring affects heat transfer.

The Heat Exchanger Service Module (TD1360V) provides hot and cold water to the heat exchanger and all the instruments needed to measure its performance. All fluid connections between the service module and the heat exchanger are self-sealing quick connectors – for safety and simplicity. The hot and cold fluid streams have different connectors to reduce errors.

STANDARD FEATURES

- Five-year warranty
- Made in accordance with the latest European Union directives
- ISO9001 certified manufacturer

LEARNING OUTCOMES

- Demonstration of heat transfer from one fluid to another through a solid wall.
- Introduction to the logarithmic mean temperature difference in heat exchangers.
- Comparison of different types of heat exchanger in terms of performance, size and relative cost (only if you have two or more optional heat exchangers).
- Flow-through and batch heating, with or without stirring, using a heating jacket or a coil.

ESSENTIAL BASE UNIT

- Heat Exchanger Service Module (TD1360V)

OPERATING CONDITIONS

OPERATING ENVIRONMENT:

Laboratory

STORAGE TEMPERATURE RANGE:

–25°C to +55°C (when packed for transport)

OPERATING TEMPERATURE RANGE:

+5°C to +40°C

OPERATING RELATIVE HUMIDITY RANGE:

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

SOUND LEVELS

Less than 70 dB(A)

SPECIFICATIONS

TecQuipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

NETT DIMENSIONS AND WEIGHT:

290 mm (height), 440 mm (width), 275 mm (depth), 7 kg

OTHER DETAILS:

- Transparent lid
- Outer tube – UPVC, 125 mm outside diameter and 113 mm inside diameter
- Inner tube – stainless steel, 101 mm outside diameter and 99 mm inside diameter (1 mm wall)
- Coil – stainless steel, 6 mm outside diameter and 4 mm inside diameter (1 mm wall)
- Batch volume of approximately 0.5 L (set by overflow)
- Mean heat transfer area approximately 0.02 m² for both the jacket and the coil
- Stirrer – low voltage motor-powered with speed controller
- Additional thermocouple measures the batch temperature
- Connection to Service Module with quick connectors.

NOTE: An additional drain connection is needed for the overflow (for flow-through experiments).