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Product Name : Astra Scientific Bench Top Mechanical Heat Pump Trainer	**Product Code :** RefrigerationLab0003

Description :

Astra Scientific Bench Top Mechanical Heat Pump Trainer

Technical Specification :

The air-to-water heat pump trainer consists of a compressor, an evaporator with fan, a thermostatic expansion valve and a coaxial coil heat exchanger as condenser. All components are clearly arranged in the trainer.

The compressed refrigerant vapour condenses in the outer pipe of the condenser and thereby discharges heat to the water in the inner pipe. The liquid refrigerant evaporates at low pressure in the finned tube evaporator and thereby absorbs heat from the ambient air.

The hot water circuit consists of a tank, a pump and the condenser as heater. For a continuous operation the generated heat is dissipated via an external cooling water connection. The cooling water flow rate is set via a valve and measured.

FEATURES

- Design and operation of an air-to-water heat pump
- Representation of the thermodynamic cycle in the log p-h diagram

- Energy balances
- Determination of important characteristic variables

o Compressor pressure ratio

o Ideal coefficient of performance

o Real coefficient of performance

- Dependence of the real coefficient of performance on the temperature difference (air-to-water)
- Operating behavior under load

SPECIFICATION:

- Compressor

Capacity: 372W at 7,2/32°C

- Coaxial coil heat exchanger (condenser)

Refrigerant content: 0,55L

Water content: 0,3L

- Finned tube evaporator

Transfer area: approx. 0,175m2

- Pump

Max. Flow rate: 1,9m3/h

Max. Head: 1,4m

- Hot water tank volume: approx. 4,5L
- Refrigerant: R134a/22/A

Filling volume: 1kg

CO2-equivalent: 0,6t

- Measuring ranges

Pressure: 2x -1…15bar

Temperature: 4x 0…100°C, 2x -100…100°C

Power: 0…6000W

Flow rate: 0…108L/h (water)

Flow rate: 10…160L/h (cooling water)

- Required for operation

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase

Astra Scientific

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