LAB ENGINEERING

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Product Name :	**Product Code :**
Bench Top Mechanical Heat Pump Trainer	RAC0003

Description :

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.
For a continuous operation the generated heat is dissipated via an external cooling water connection.
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.
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
Compressor pressure ratio
Real coefficient of performance
Dependence of the real coefficient of performance on the temperature difference (air-to-water)
Operating behavior under load
Ideal coefficient of performance

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