



FEATURES

- > *Transparent duct for full visibility of the process and the components*
- > *Includes pre-heaters, humidifier, chiller/dehumidifier and reheaters*
- > *Fully instrumented, with temperature and Relative Humidity sensors at every stage of the process, plus an air flow sensor*
- > *RH sensors calibrated for maximum accuracy*
- > *Suitable for both vocational training and for rigorous academic analysis of the thermodynamic principles involved*
- > *Fully computer controlled with real time data logging of results (requires a PC not supplied by Armfield)*
- > *Capability of using PID control for preheat, humidity and reheat allows stable conditions to be set up for investigations*

DEMONSTRATION CAPABILITIES

- > *Understanding and using psychrometric charts, relative humidity and humidity ratios*
- > *Sensible Heating and Cooling of air*
- > *Humidification and Dehumidification*
- > *Understanding Enthalpy*

RA2 is a fully instrumented bench mounted air conditioning duct for teaching all aspects of air conditioning systems.





DESCRIPTION

The duct is fabricated from clear acrylic for visibility and mounted on a painted steel frame. Air is drawn into the duct by a variable speed fan, and is passed through a flow straightener to the preheat heating elements. The air is then passed over a nozzle from a steam boiler, which allows the air to be humidified.

The next component in the duct is the evaporator of the integral refrigeration unit. As the air passes through the evaporator it is cooled down.

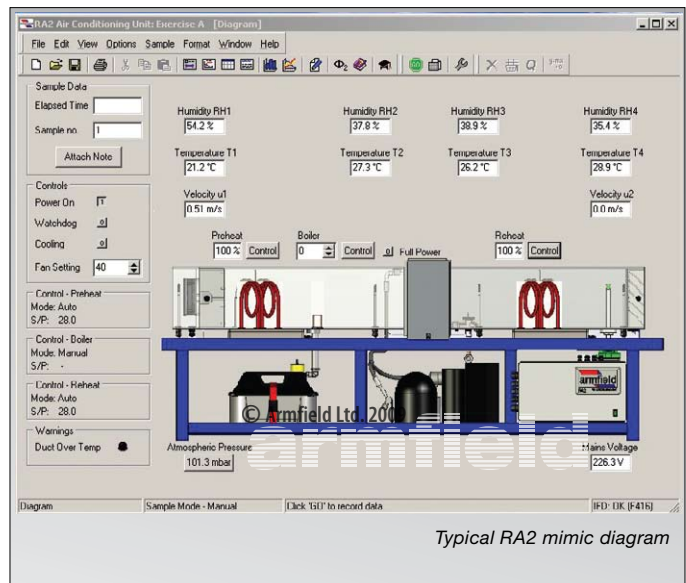
The evaporator housing allows any water which condenses from the air to be collected in an external vessel. After the evaporator the air passes over the reheat elements and out through a louvered exit.

Temperature and RH sensors are provided at the air inlet, after the preheat and humidifier, after the evaporator and after the reheat. The air flow is measured by an electronic sensor. The mains supply voltage is monitored in the equipment to allow calculation of effective heater powers.

Underneath the duct are mounted the steam boiler for the humidifier, the compressor and condenser for the refrigeration system and the electronic control box.

SOFTWARE DETAILS

The equipment is controlled from a personal computer (not supplied) using a USB interface. Powerful software is supplied with detailed mimic diagrams, and full instructional help texts, comprehensive data logging and graph plotting facilities, together with sensor calibrations and a wide variety of display and data export options.



FOR FURTHER INFORMATION ON THE ADVANCED FEATURES OF THE SOPHISTICATED ARMFIELD SOFTWARE VISIT: www.armfield.co.uk/armsoft_datasheet.html



TECHNICAL DETAILS

Duct Size:	200mm x 200mm
Air speed:	variable to > 1m/s
Preheaters:	400W
Final Heaters:	200W
Refrigerant:	R134a
Boiler Power:	2KW nominal
Chiller Power:	500W nominal

COMPLEMENTARY PRODUCTS

- RA1 Vapour-Compression Refrigeration Unit*
- RA3 Air Conditioning Unit*
- TH1 Temperature Measurement and Calibration*
- TH2 Pressure Measurement and Calibration*
- TH3 Saturation Pressure*
- TH4 Recycle Loops*
- TH5 Expansion Processes of a Perfect Gas*

ORDERING DETAILS

RA2-A/B/G

Fully instrumented bench mounted air conditioning duct for teaching all aspects of air conditioning systems.

ESSENTIAL ACCESSORIES

Personal Computer (PC), running Windows 98 or above, with spare USB port (not supplied).

REQUIREMENTS

Electrical supply:

Single phase electrical supply:

RA2-A: 220-240V 50Hz 13A

RA2-B: 115V 60Hz 25A

RA2-G: 230V 60Hz 13A

OVERALL DIMENSIONS

Length: 1.72m

Width: 0.40m

Height: 0.50m

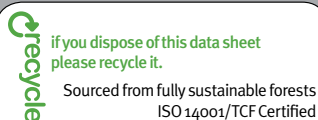
SHIPPING SPECIFICATION

Volume: 1.2m³

Gross weight: 150kg

ORDERING SPECIFICATION

- Air Conditioning teaching system, complete with initial heating stage, humidifier, chiller/dehumidifier and final heating stage
- Transparent duct (200mm x 200mm) for complete visibility of the process
- Computer controlled via USB interface, with complete educational software including data logging, graph plotting with real time updates, mimic diagrams, data export, Educational software, replicating the psychrometric chart calculations
- 4 sets of Temperature and Relative Humidity measurements at the various stages of the process
- RH sensors come with calibration values which can be entered into the software for best accuracy
- Dual control of humidifier setting with a fast heat up setting and a gentle setting for control



Head Office:
Armfield Limited
Bridge House, West Street,
Ringwood, Hampshire.
BH24 1DY England

Telephone: +44 1425 478781
Fax: +44 1425 470916
E-mail: sales@armfield.co.uk

U.S. Office:
Armfield Inc.
436 West Commodore Blvd (#2)
Jackson, NJ 08527
Telephone: (732) 928 3332
Fax: (732) 928 3542
E-mail: info@armfieldinc.com



Innovators in Engineering Teaching Equipment
learn more!

© 2009 Armfield Ltd. All Rights Reserved
We reserve the right to amend these specifications without prior notice.
E&OE
0109/3k/S02452

