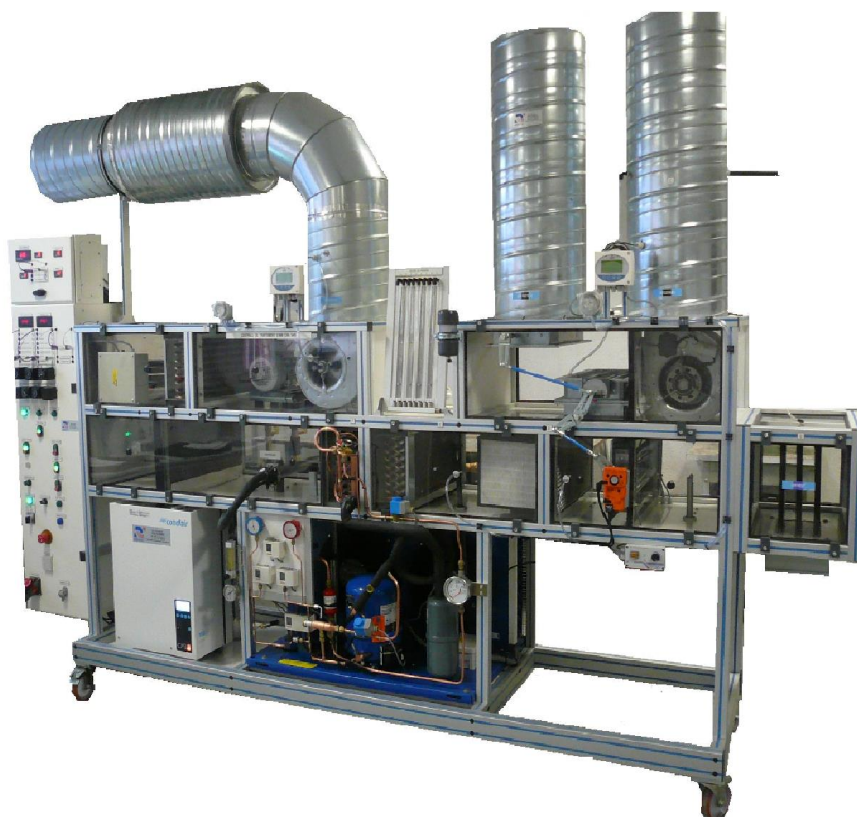


## AIR CONDITIONING UNIT WITH INSTRUMENTATION



### Experimental capabilities

- Study of the components of an installation
- Heating or cooling operation (refrigerant and/or chilled water)
- Determination of the heat balance
- Influence of the new air ratio / recycled air
- Influence of the air velocity
- Study of psychrometric transformations on the humid air diagram
- Effectiveness of exchanges
- Pressure losses of different equipment
- Study of the regulation.
- Temperature / humidity
- Free cooling and free Heating

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## Operating principle

The operation is identical to the sets of larger capacity

This equipment is intended to be installed in a position, to know how to attach to a local to be conditioned.

Depression treatment zone

Mixing box at the suction

Measuring of what enters, of what is happening and what comes out.

Transparent handling boxes

Easy access to components

Use of R134a refrigerant complies with the new standards of refrigerants

All control inputs of the actuators are connected to  $\square$  4 mm banana sockets allowing the operation in manual or in regulated mode (connection to climate control bench RTC 206).

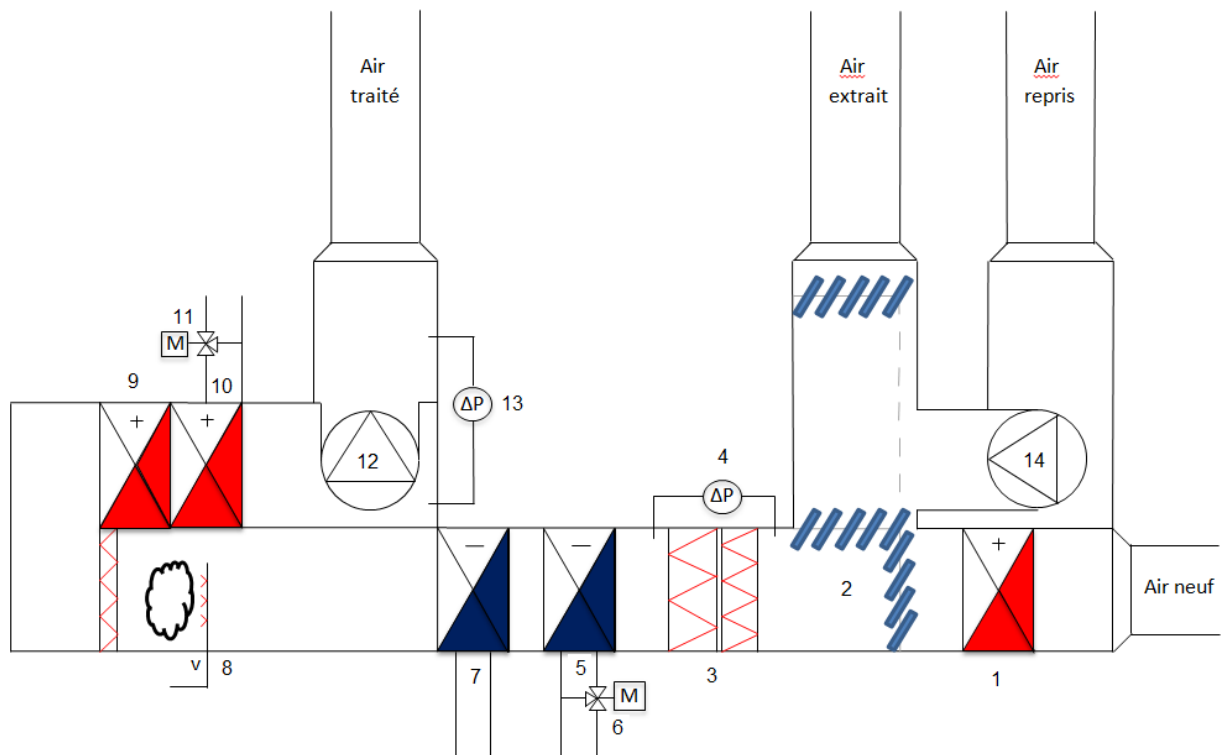
The robust design of this device makes it suitable for use in schools.

The equipment is set up on an Anodized aluminium frame on casters wheels. This gives it great strength and a flexibility of integration into your premises.

The manufacture of this equipment complies with the European standard for machinery manufacturing.

This equipment can be used alone or with other compatible equipment from our range (see last section of this document).

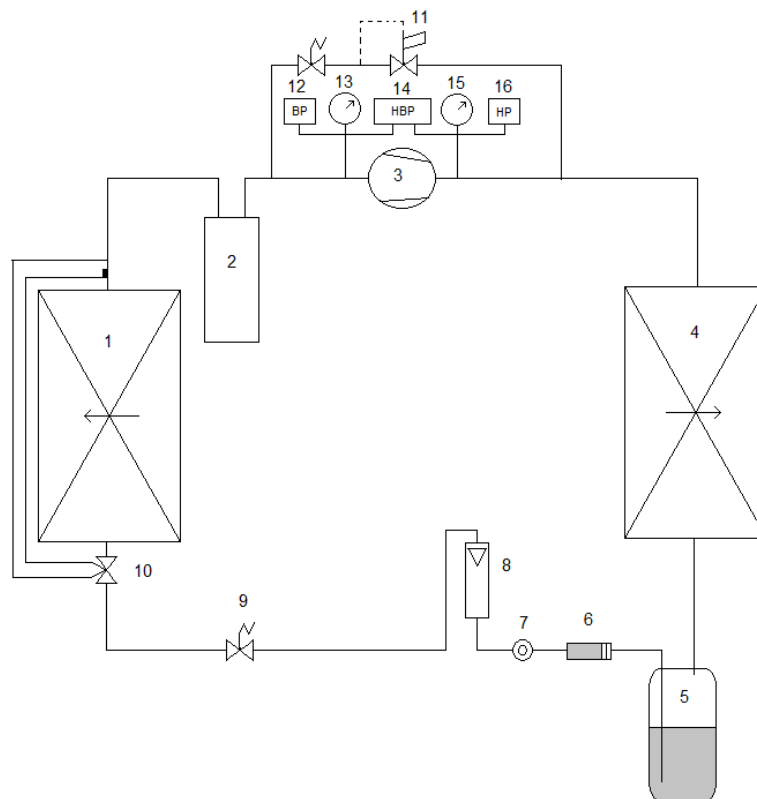
## Illustrations Technical details



# CRA546



Landmarks	Designation
1	Hot simulation battery
2	Air mixing flap
3	Filters
4	Pressostat filter
5	Cold water battery
6	Three-way valve motorized cooling battery
7	Direct expansion cooling battery
8	Steam humidifier
9	Electrical heating battery
10	Hot water battery
11	Three-way valve motorized heating battery
12	Air fan supply
13	Air flow rate differential pressure switch
14	Air fan supply resumed



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Illustrations non contractuelles / Illustrations not contractual

version : FT-CRA546-STD-A

Landmarks	Designation
1	Evaporator
2	Suction line accumulator.
3	Compressor
4	Condenser
5	Fluid tank
6	Dehydrator
7	Liquid LED
8	Flowmeter
9	Electrovalve
10	Thermostatic regulator with external equalizer
11	Capacity control valve KVC
12	Low pressure pressostat
13	Low pressure manometer
14	BPH regulating pressostat
15	High pressure manometer
16	High pressure pressostat

## Mixture box

- Servomotor simultaneously controlling three check valves: Fresh air - recycled air - air extracted
- Control 0 - 10 V 0 - 100% recycled air

## Filtration

- Gravimetric coarse filter
- Fine filter opacimetric

## Cooling / dehumidification

### Direct expansion battery

- Fluid 134 a
- Refrigeration unit Qo 6.3 kilowatts at + 5 °C
- Type of regulation "pump down"
- Type of control T.O.R.
  
- Chilled water battery
- Water 7 ... 12 °C regulated by three-way valve and servomotor
- Chilled water group with condensation by air mounted on castors and fitted with quick connect hoses.
- Servomotor control 0 - 10 V 0 - 100% open

## Humidification

### With dry steam

- Capacity: 4 kg/h
- Control and digital display controller
- Electrodes heating principle
- Control 0 - 10 V 0 ... 5 kg/h

### With water spray

- Manual setting only
- Measurement of pressure and flow rate sprayer

## Heating

### Preheat fresh air

- 3 levels of 2.5 kW electric
- Manual control

### Electric heating treatment

- 1 level 6 kW electric
- Control 0 - 10 V 0 ... 6 Kw

### Heating by hot water heating battery

- Battery output 6 kW
- Servomotor control 0 - 10 V to 0 - 100% opening of the three-way valve

## Ventilation

### Supply air fan

- Nominal flow rate: 1400 m<sup>3</sup>/h
- Frequency inverter on the engine
- Transmission by pulley-belt
- Temporization on the fan when the plant shutdown

### Extraction fan

- Nominal flow rate: 1400 m<sup>3</sup>/h
- Voltage Inverter on the engine
- Direct coupling

## Instrumentation

- Seven temperature and relative humidity measurements
  - Fresh Air
  - Return air
  - Air after mixing
  - Air after cold battery
  - Air after humidifier
  - Air blowing
  - Ambient air
- Manometer with eight columns for the measurement of static pressure throughout the treatment
- Refrigerant flowmeter and high and low pressure manometers on the direct expansion group.
- Type of probes thermocouple and pressure sensor for digital display temperatures and pressures.
- Two flow rate probes (supply and return) with retransmission on digital display of Kimo type

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# CRA546



- Sensor with display for the speed of rotation of the blower fan.
- Local pressure sensor with display for the work in overpressure or depression.
- Condensing pressure control on refrigeration unit by pressostatic inverter on condenser fan.

## Chassis

- Aluminum frame anodized on wheels.
- Transparent and easily removable side panels.

---

### Services required

### Documentation

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• Electrical supply : 400 Vac – 50 Hz</li><li>• Water supply : 1 L/min</li><li>• Connections of the air networks on the machine Ø355mm</li><li>• Dimensions: (LxWxH mm): 3500 x 800 x 2400</li><li>• weight (Kg): 350</li></ul> | <ul style="list-style-type: none"><li>• User's manual</li><li>• Pedagogical manual</li><li>• Technical documentation of the components</li><li>• Lab exercises</li><li>• Certificate of conformity CE</li></ul> |
|---|---|

Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine

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### Recommended equipment

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• Air conditioning control system</li><li>• Water chiller</li></ul> | <ul style="list-style-type: none"><li>• Ref : RTC 206</li><li>• Ref : GEG 106</li></ul> |
|---|---|