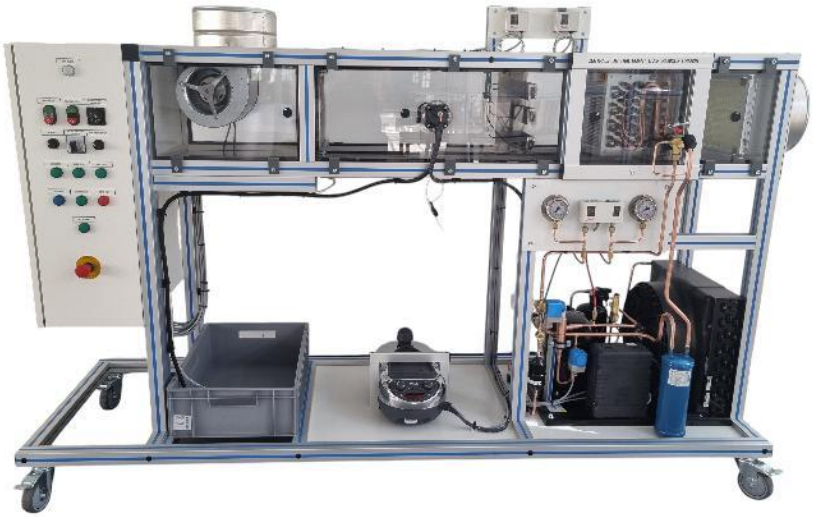
CRA525

BASIC AIR HANDLING UNIT



Experimental capabilities

- **Identification of the components of an air handling unit and a direct expansion refrigeration unit.**
- **Commissioning and operational controls of a AHU.**
- **Measurements of operating parameters (air temperature, air humidity, air velocity, differential pressure).**
- **Study of heat exchanges and air transformation (electric heater, direct expansion exchanger, humidifier).**
- **Plot of the air cycle on a psychrometric diagram.**
- **Plot of the characteristic curve of the fan (pressure as a function of flow)**
- **Study of the refrigeration cycle and plotting of the cycle on an enthalpy diagram**

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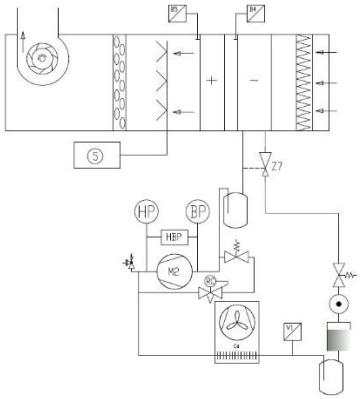
version : FT-CRA525-STD-C

CRA525

Operating principle

The CRA525 bench allows the study of a single-flow industrial air handling unit (1 fan). It includes the classic elements of a treatment network, namely: filters, a cold exchanger, a refrigeration unit, a humidifier, a hot exchanger, a fan.
Students will first have to identify the components of the AHU and the directions of air circulation.
They will then have to commission the system according to the conditions set by the teacher (air conditioning mode or heating mode).
When the operating regime is established, they must then measure the operating parameters (temperature, humidity, air flow) with the supplied portable devices.
The next task is to exploit the measurements by plotting the air cycle on a psychrometric diagram and calculating the powers of the exchangers.
The air handling bench also allows the refrigeration cycle to be studied thanks to the direct expansion condensing unit.
The rugged design of this equipment makes it perfectly suited for use in a school setting. Its anodized aluminum structure on wheels gives it a very high robustness as well as great flexibility of integration into your premises. The manufacture of this equipment complies with the European Machine Directive.

Illustrations



1. **Filtration**
   A gravimetric coarse filter
   A fine opacimetric filter
2. **Cold battery with refrigeration unit**
   Finned cold coil placed in the air handling duct.
   Complete refrigeration unit
   The group includes all the accessories necessary for operation: Air condenser, HP pressure inverter, liquid tank, thermostatic expansion valve, anti-liquid shock bottle, HLP safety pressure switch, power regulation valve, low pressure gauge, high pressure gauge.
   Condensate collection tank in the lower part
3. **Electric heating coil**
   Finned heating resistors
   Adjustable power from 0 to 100%

Technical details

4. **Steam Humidifier**
   Stainless steel steam rail
   Condensate recovery tank
   Water supply tank
5. **Fan**
   Fan with integrated motor
   Nominal flow rate : 1500 m3/h-400Pa
   Speed variation from 0% to 100%
6. **Instrumentation**
   1 HP pressure gauge on the refrigeration circuit
   1 LP pressure gauge on the refrigeration circuit
   1 portable thermometer with wired thermocouple probe and contact probe
   1 portable thermo hygrometer
   1 portable anemometer
   1 portable differential pressure gauge
7. **Frame made of screwed aluminum profiles**
   The structure is made of screwed anodized aluminum profile equipped with four steering castors with brakes
   Transparent, removable side panels of the processing sheath with holes for inserting probes from portable measuring devices.
8. **Electric box of the installation :**
   The machine has an electric box that complies with European standards. It contains at least:
   - a general power disconnector
   - a 30mA RCD
   - the relay and circuit breakers necessary for operation
   - the buttoning and the lights necessary for operation
   -an emergency stop button
   - a potentiometer graduated from 0 to 100% for the control of the supply fan

Services required

- Power supply: 230 Vac – 50 Hz – 16 A
- Power supply type: 1 phase(s) + Neutral + Earth.
- Water supply: Humidifier tray filling
- Dimensions: (LxlxH mm): 2000 x 650 x 1470
- Weight (kg): 100

Note: In the context of an installation of the equipment by our services, all connections to the networks must be located within 2m of the machine

Documentation

- Instruction manual
- Pedagogical manual
- Technical file
- Practical work
- Electrical diagram of the installation
- Hydraulic and aeraulic diagram of the installation
- R134a enthalpy diagram in PDF format
- Psychrometric air diagram in PDF format
- CE Certificate of Conformity

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