

# PACKAGED UNIT

**UNIC sal** is equipped to produce a wide range of **COOLER®** Air conditioning and Refrigeration units, conforming to the international standards and works continually to improve its products and facility. As a result, the design and specifications of each product at the time of order may be changed without notice and may not be described herein. Please contact our customer department for specific information on the current design.

**Consultancy & Design** Our Engineering Dep't is always available to solve special requirements, investigating the client situation and using the most sophisticated available tools. The knowledge and the precious experience of our Engineers is supported by the most advanced computerized calculations and design programs.

Revision AG 16-07



**COOLER® Packaged Units** Air-cooled and Water-cooled Units are designed for Industrial, Commercial and Residential Air-Conditioning applications. Available both in Cooling Only & Heat-Pump models, using all the new series of New Refrigerants Ozone-Friendly. Heating Steam Coil, Hot Water Coil and Higher Unit's Capacity, available on request.

**COOLER® Packaged Units** Units are built with the industry's most reputable CE & UL listed components, they are completely factory assembled, dehydrated, leak tested, wired and fully charged and made ready for immediate field operation. All what is required on field is to connect refrigerant piping and power supply, which minimizes field installation costs.

**Packaged Units are available in a wide range of standard capacity from 5.5 to 180 KW at 50 Hz (19 to 615 MBtu/hr)**  
**They are designed to operate at the outdoor dusty and tropical ambient temperature as high as +55 °C**  
**All Sizes are available to fit all special Client's needs.**



## FEATURES

The Units are designed for external roof-top or internal ceiling suspension with vertical or horizontal discharge over a wide range of ambient temperatures.

All **COOLER® Packaged Units** series incorporate the following efficient power protection and economic features, starting from Condenser's and Evaporator's components selection, that comply with the best performances out of the joint duty of them.

## CABINET

Heavy gauge galvanized steel cabinet finished with weather-proof electrostatic powder coating. The units are equipped with easily removable access panels to facilitate all maintenance work inside the units. Single power connections and fully insulated control panel, with an easily access door that facilitates power and wiring control.



## COMPRESSORS

High Efficiency Compressors, whether hermetic or semi-hermetic, Reciprocating, Scroll or Screw, totally enclosed in an independent casing which is fully insulated by neoprene coated thread reinforced fiber glass panels. This decreases noise and vibration generation from unit.

All compressors are equipped with internal overload protection, Hi & Lo voltage cut-out, Hi & Lo pressure cut-out switches, crankcase heaters, start time delay, phase failure; de-icer on Heat Pump Models. Multiple compressors arrangement, whether independently or in parallel, provides greater operating flexibility by the variation of capacity, allowing partial operation of unit for power saving purposes.

Compressors are fully hermetic up to 40 tons Unit's capacity, or semi-hermetic from 20 tons compressors and above. The dual-compressors range of the **COOLER® Packaged Units**, represented in the 7½ tons & higher range, are the state of the art products, featuring the most advanced technology, a real break through in performance, flexibility & reliability.

## MULTIPLE COMPRESSORS

Whether provided in a single circuit or in multiple circuits, units have a multi-steps compressor start-up, imposing much less power requirement, due to the reduction in locked rotor current over single compressor units, allowing them to start one at a time even on weak electric power supply.

Multiple compressors on **COOLER® Packaged Units** Models, are state of the art products, featuring the most advanced technology; a break through in performance, flexibility, and reliability. When provided with two compressors, unit becomes a two-stage unit (50% and 100% power capacity) and a two-stage thermostat is used ordering one or two compressors to start, as per cooling load demands. Also, one compressor can be totally shut down, a very important feature when depending on generator power or while servicing.

Units with twin compressors incorporate all the feature of single compressor units plus defroster and phase protection as standard, and dual Hi & Lo pressure cut outs on two-stage units.



### CONDENSING COILS

Condenser coils are made of 9.52 mm (3/8") o.d. finned coils, permitting improved heat exchange between air and refrigerant fluid; they are manufactured using advanced technology productions systems.

The finned block is made of mechanically expanded copper tubes on continuous aluminum fins equipped with collars. Perfect and uniform spacing, is achieved by the collars, plus perfect contact and minimum resistance to heat flow between fins and tubes. Also available epoxy-painted aluminum fins and Copper fins, corrosion-resistant, for highly aggressive ambient air (sea-wind or industrial area).

All **Packaged Units** Models have fins pressed with a special undulating surface. This increases the strength of the fins and creates a controlled turbulence in the airflow that increases the air-fin heat transfer coefficient. Each coil is leak-tested at the factory, at a pressure of 400 psi (28 kg/cm<sup>2</sup>).



### EVAPORATING COILS

Evaporator coils are made and factory leak tested at a pressure of 28 kg/cm<sup>2</sup> like the Condenser coils, they are provided with multi post distribution. 1.25 mm thick galvanized steel, with non-corrosive protection condensate drain-pan, slightly slanted towards the trap of the condensate pipe to enhance condensate drainage and is insulated with 10 mm thick polyurethane foam.

### FAN MOTOR ASSEMBLY

Condenser's Fans are of high efficiency propellers, are made of sickle shaped blades that considerably reduce air-flow turbulence, which is usually located around the blades inlet and outlet borders, offering low noise level and high aerolic efficiency. Pre-coated steel wire fan guards.

Evaporator's Fans are forward curved centrifugal type double inlet, made of galvanized steel that delivers an accurate air-flow, at the requested external duct pressure drop. Motors are of the totally closed type IP-55 protection, 3 phase, canopy, four or six poles, class F winding insulation with internal thermal protection and self lubricated bearings.

All Fan's driving components are mounted on rubber pad anti-vibration isolators for maximum noise reduction.



## CONTROL PANEL

All **COOLER® Packaged Units** Models of Air-Conditioners have a Control Panel made of galvanized metal sheets and mounted inside the unit with an easily access panel for servicing purposes. Power and control wiring and terminal connections are on the same side of the unit, which facilitates wiring to indoor and/or outdoor Thermostats, and Power Supply.

The control panel incorporates the following features:

- Circuit-breakers for Motors and Compressors.
- Compressor's and Fan's contactors.
- Compressor's Motors over-current protection.
- Condenser & Evaporator's Fan Motors over-current protection.
- Phase-failure protection.
- High & Low Voltage protection.
- Compressor's Start Time delay relays.
- Compressor Low and High pressure safety switches.
- Compressor's oil failure safety switches (semi-hermetic).

Multi step temperature controller for multiple compressors multi-circuit units (optional).

Power and control circuit terminal connections and fuses.

De-icer for Heat Pump models.

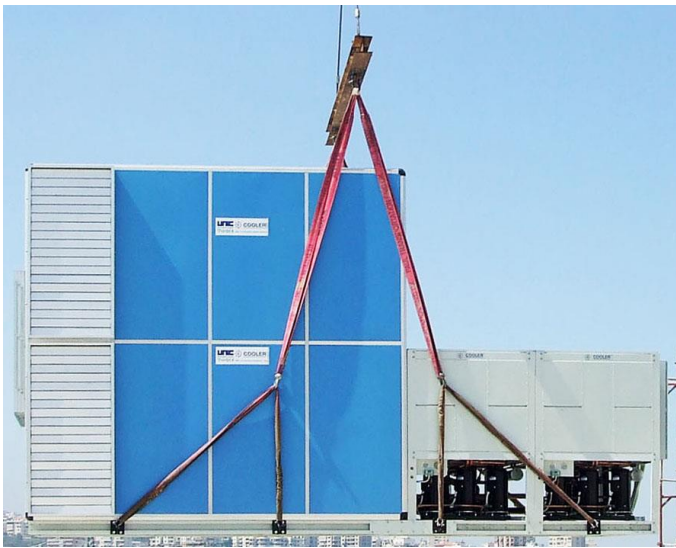
Transformer ready to connect electronic thermostat (optional).

Flow-switch for CWPU Series (optional).

Freeze-stat for CWPU Series (optional).

24 VAC transformer ready to connect electronic thermostat (optional).

All Starters & Motor's protection against overload & short-circuits, comply with IEC 947 new Standard.



## FILTERS

All **COOLER® Packaged Units** are equipped with either 1" or 2" thick permanent cleanable return flat air-filters, with an easy side access for maintenance and cleaning.

All **COOLER® Packaged Units** can be equipped with Bags-filters, High Efficiency or Absolute filters as per Client's needs.

## ELECTRIC HEATER

All **COOLER® Packaged Units** can be equipped with **COOLER®** Electric Heater (optional).





## QUALITY GUARANTEE

**UNIC sal COOLER®** guarantees contractual free maintenance, availability of all parts and components, and qualified field technicians to carry out the maintenance requirements.

**UNIC sal** Company is ISO 9001:2015, DQS-UL, IQNet and CE Certified.



## ORDERING GUIDELINE Ex: CAPU 122 D23 0 DU V L B

CAPU: COOLER AIRCOOLED PACKAGED UNIT

CWPU: COOLER WATERCOOLED PACKAGED UNIT

CAPACITY: (KW)

D10: Direct Expansion Cooling Only

D11: Direct Expansion Cooling Only with 1 row water Heating

D12: Direct Expansion Cooling Only with 2 row water Heating

D13: Direct Expansion Cooling Only with Electric Heater

D20: Direct Expansion Heat Pump

D21: Direct Expansion Heat Pump with 1 row water Heating

D22: Direct Expansion Heat Pump with 2 row water Heating

D23: Direct Expansion Heat Pump with Electric Heater

W41:

|||... With 1 row water Heating

|||.... With 4 row water Cooling/Heating

||.... Water Coil

0: 0 is standard, 1, 2...: Revision

DU: Ducted Type

DE: Decorative Type

V: Vertical Discharge

H: Horizontal Discharge

L: Left Connection

R: Right Connection

Power supply: A: 220V - 3Ph - 50Hz

C: 110V -1Ph - 50Hz

B: 380V - 3Ph - 50Hz

D: 220V -1Ph - 50Hz

**UNIC sal** Roumieh (Industrial area) Beirut

Tel: +961.1.890111-222 — 1.884579 — 1.878853 — 3.236936

Fax : +961.1.878854 — P.O.Box 90.1701 Beirut, LEBANON

unic@unic-cooler.com - www.unic-cooler.com