

Dehumidification capacity: 3,9 to 15,2 kg H<sub>2</sub>O/h



Heating  
recovery



Heating and *dehumidification* of covered pools  
*Low* consumption  
*Electronic* control

## USE

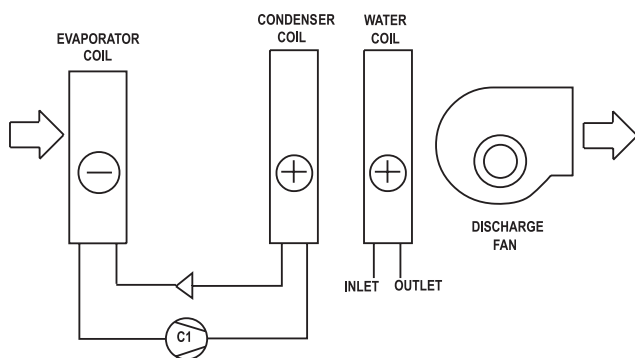
The **BCP junior** Air Treatment Units are monoblock units suitable for buildings dehumidifying: covered pool, etc. The units are adapted to other cases. They are designed for indoor installations.

## RANGE

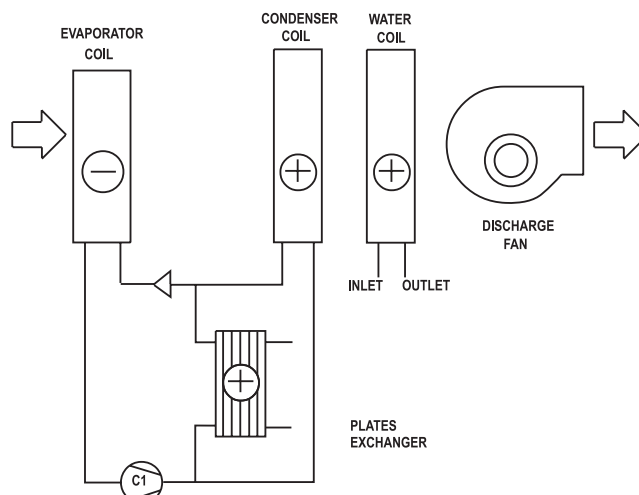
**BCP junior series:** 1 cooling circuit, 1 compressor, 8 models:  
• 20 / 30 / 40 / 50 / 60 / 70 / 80 / 90.

## PRINCIPLE SCHEMES

BCP - 20 / 30 / 40 / 50 / 60



BCP - 70 / 80 / 90 (40 / 50 / 60 optional)



**NOTE:** complete brochure with dimensions and fan curves available in pdf file (consult us)

## CHARACTERISTICS

### ■ Standard equipment

- Sandwich panel casing made up of 1 mm polyester coated galvanized steel plates, with glass fiber insulation of 25 mm.
- Support frame and easily removable panels. Hinged doors to access to the electrical panel.
- Panels with rubber joints ensuring watertightness.
- Adapted dimensions to cross wide doors > 680 mm (removable supports 40, 50 and 60).

### ■ Air circuit

- Easy-cleaning and renewable filter.
- Direct expansion chiller coil, made up of copper tubes and aluminium fins covered with polyvinyl (optional).
- Tilted stainless steel condensates drain pan with drain hole.
- Condensing coil made up of crimped aluminium fins and copper tubes.
- Ventilation group made up of a galvanized steel centrifugal propeller and an external motor.
- Change of the fan speed with voltage control by manual switch.
- Air BY-PASS damper, manual setting.

### ■ Cooling circuit

- Scroll compressor with acoustic insulation, overall protection of the module ensuring a combined protection of the motor temperature and the discharge temperature, mounted on antivibrations dampers.
- Plates exchanger made up of special SMO-254 steel, thermo-welded with nickel (high resistance to corrosion), water pool condensation and placed in parallel with the air condensation coil. Standard in 70 / 80 / 90 models and optional in 40 / 50 / 60 models.
- Anti-acid dryer filter.
- Complete load of R-407c refrigerant.

### ■ Protections

- High and low pressure pressostats.
- Main door switch.
- Power supply fuse protection for compressor and motor fan assemblies.
- Automatic circuit switch.
- Air temperature limit thermostat at the inlet of the dehumidification coil.
- Anti-short- cycle compressor timer.

### ■ Electrical panel

- Complete electrical panel, totally wired.
- Main earthing.
- Contactors for compressor and motor fan assemblies.

### ■ Control

- For relative humidity: humidity probe and a digital controller for one stage, which acts on the compressor operation.
- For temperature (optional): temperature probe, a digital controller which acts on the hot water coil or electrical coil, 3-way proportional valve for the hot water coil.

### ■ Options

- 2-row hot water coil with a 3-way proportional valve.
- Condensation coils and hot water coils made up of aluminium fins and polyurethane coating.
- 1 or 2-stage electrical heater with incorporated control.
- Copper / copper fins coils.
- G 4 gravimetric filter.
- Dirty filter differential pressostat.
- Water condenser flexible connections.
- Mixing boxes for free-cooling, with motorized damper boxes and centrifugal fan return. Carel pCOc electronic control.
- Hot water coil flexible connections.
- External air intake damper box.
- Carel pCOc electronic control. This optional control allows the management of:
  - Mixing dampers for free-cooling.
  - Motorized damper boxes.
  - Centrifugal return fan.
  - Possibility of centralized management.

## TECHNICAL CHARACTERISTICS

| BCP junior                |                                  | 20              | 30       | 40       | 50       | 60       | 70       | 80       | 90       |
|---------------------------|----------------------------------|-----------------|----------|----------|----------|----------|----------|----------|----------|
| Air Circuit               | Cooling circuit (1) (kW)         | 5,6             | 7,3      | 10,2     | 12,6     | 15,5     | 18,2     | 20,7     | 22,0     |
|                           | Absorbed capacity (2) (kW)       | 2,0             | 2,5      | 3,4      | 4,0      | 4,9      | 6,0      | 6,7      | 7,3      |
|                           | Dehumidification capacity (kg/h) | 3,9             | 5,05     | 7,05     | 8,7      | 10,7     | 12,6     | 14,3     | 15,2     |
|                           | Nominal air flow (m³/h)          | 1.200           | 1.500    | 2.100    | 2.600    | 3.200    | 3.700    | 4.300    | 4.600    |
|                           | Maximum air flow (m³/h)          | 1.440           | 1.800    | 2.520    | 3.120    | 3.840    | 4.440    | 5.160    | 5.520    |
|                           | Avail. static pressure (mm.w.g.) | until 15        | until 15 | until 15 | until 15 | until 15 | until 12 | until 10 | until 10 |
|                           | Fan type / number                | CENTRIFUGAL / 1 |          |          |          |          |          |          |          |
| Compressor                | Fan capacity (kW)                | 0,42            | 0,42     | 0,6      | 0,6      | 0,6      | 1,1      | 1,1      | 1,1      |
|                           | Type                             | SCROLL          |          |          |          |          |          |          |          |
|                           | Number / Circuit numbers         | 1 / 1           |          |          |          |          |          |          |          |
| Heat recovery             | Disponibility                    | NO              |          | OPTIONAL |          |          | STANDARD |          |          |
|                           | Heating capacity (4) (kW)        | --              | --       | 6,6      | 8,2      | 10,1     | 11,8     | 13,5     | 14,3     |
|                           | Nominal water flow (l / h)       | --              | --       | 1.200    | 1.420    | 1.800    | 2.100    | 2.400    | 2.650    |
|                           | Pressure drops (m.c.w.)          | --              | --       | 1,0      | 1,3      | 1,9      | 1,1      | 1,4      | 1,7      |
|                           | Hydraulic connections            | --              | --       | 1"       | 1"       | 1"       | 1 1/4"   | 1 1/4"   | 1 1/4"   |
| Hot Water Coil (optional) | Heating capacity (3) (kW)        | 15,4            | 16,5     | 18,5     | 21,0     | 23,6     | 35,0     | 39,7     | 41,1     |
|                           | Nominal air water (l / h)        | 800             | 850      | 960      | 1.080    | 1.230    | 1.820    | 2.070    | 2.130    |
|                           | Pressure drop (m.c.w.)           | 1,7             | 2,4      | 0,6      | 0,7      | 0,9      | 1,6      | 1,9      | 2,0      |
|                           | Hydraulic connections            | 3/4"            | 3/4"     | 1"       | 1"       | 1"       | 1 1/4"   | 1 1/4"   | 1 1/4"   |
| Maximum Power Input       | 230 V / I ph / 50 Hz (A)         | 17,1            | 21,6     | 32,2     | --       | --       | --       | --       | --       |
|                           | 400 V / III ph / 50 Hz (A)       | --              | --       | 17,2     | 19,2     | 22,2     | 20,1     | 23,1     | 23,1     |
| Refrigerant               | Type                             | R-407C          |          |          |          |          |          |          |          |
|                           | Load (kg)                        | 1,9             | 2,15     | 2,2      | 2,7      | 2,8      | 4,75     | 4,85     | 5,1      |
| Dimensions                | Length (mm)                      | 1.430           | 1.430    | 1.530    | 1.530    | 1.530    | 1.082    | 1.082    | 1.082    |
|                           | Width (mm)                       | 658             | 658      | 838      | 838      | 838      | 680      | 680      | 680      |
|                           | Height (mm)                      | 636             | 636      | 700      | 700      | 700      | 2.143    | 2.143    | 2.143    |
| Weight                    | (kg)                             | 168             | 172      | 208      | 212      | 222      | 300      | 302      | 329      |
| Condensates Drain Ø       |                                  | Connection 3/4" |          |          |          |          |          |          |          |

(1) Cooling capacity for air inlet temperature conditions 28°C and 65% RH.

(2) Total absorbed capacity by compressor and motor fan assemblies in nominal conditions.

(3) Water from the hot water coil 82/65°C.

(4) Water from the recovery circuit 28/33°C.

## INDEPENDENT RETURN MODULE CHARACTERISTICS (OPTIONAL)

| BCP junior                           |                                  | 20              | 30    | 40    | 50    | 60    | 70    | 80    | 90    |
|--------------------------------------|----------------------------------|-----------------|-------|-------|-------|-------|-------|-------|-------|
| Independent return module (optional) | Avail. static pressure (mm.w.g.) | 11              | 10    | 11    | 10    | 10    | 10    | 10    | 10    |
|                                      | Fan type / Number                | CENTRIFUGAL / 1 |       |       |       |       |       |       |       |
|                                      | Fan Power (kW)                   | 0,15            | 0,15  | 0,52  | 0,52  | 0,52  | 0,52  | 0,6   | 0,6   |
| Dimensions                           | Length (mm)                      | 1.417           | 1.417 | 1.500 | 1.500 | 1.500 | 840   | 1.500 | 1.500 |
|                                      | Width (mm)                       | 660             | 660   | 840   | 840   | 700   | 680   | 840   | 840   |
|                                      | Height (mm)                      | 636             | 636   | 700   | 700   | 700   | 2.143 | 700   | 700   |
| Weight                               | (kg)                             | 90              | 90    | 139   | 139   | 139   | 139   | 140   | 140   |

## MAXIMUM CURRENT (A)

| BCP junior            |                        | 20   | 30  | 40  | 50  | 60  | 70  | 80  | 90  |
|-----------------------|------------------------|------|-----|-----|-----|-----|-----|-----|-----|
| Compressor            | 230 V / I ph / 50 Hz   | 13,5 | 18  | 24  | --  | --  | --  | --  | --  |
|                       | 400 V / III ph / 50 Hz | --   | --  | 9   | 11  | 14  | 14  | 17  | 17  |
| Discharge fan         | 230 V / I ph / 50 Hz   | 3,6  | 3,6 | 8,2 | 8,2 | 8,2 | 6,1 | 6,1 | 6,1 |
| Return fan (optional) | 230 V / I ph / 50 Hz   | 1,4  | 1,4 | 3,8 | 3,8 | 3,8 | 3,8 | 8,2 | 8,2 |

## WIRING SECTION (MM<sup>2</sup>)

| BCP junior   |                       | 20    | 30    | 40     | 50    | 60    | 70    | 80    | 90    |
|--------------|-----------------------|-------|-------|--------|-------|-------|-------|-------|-------|
| POWER SUPPLY | 230 V 2 wires +GND    | 4 PVC | 6 PVC | 10 PVC | --    | --    | --    | --    | --    |
|              | 400 V 3 wires +GND+ N | --    | --    | 4 PVC  | 4 PVC | 6 PVC | 6 PVC | 6 PVC | 6 PVC |

**NOTE:** The wiring sections are not contractual. Depending on the length and the current, an appropriate section should be studied. Calculations made for installation B type according to table 1 of IRC-BT-19 (REBT 2002) and PVC insulation = Polyvinyl chloride (Maximum temperature 70°C (permanent service) or XLPE = Reticulated polyethylene (Maximum temperature 90°C in the conductor (permanent service).

**NOTE:** The power supply should be modified in case of additional electrical heater. The maximum current will be caused as a sum of each element selecting the wire section according to regulations.

**NOTE:** The electrical line should be protected by an automatic magnetothermal switch and/or fuses planned by the installer.

## SOUND POWER AND SOUND PRESSURE LEVEL

A) The **sound power level** in the discharge fan should be taken into account for the silencer calculation:

| BCP junior | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   |
|------------|------|------|------|------|------|------|------|------|
| dB(A)      | 36,5 | 39,5 | 42,5 | 44,5 | 49,0 | 47,5 | 49,5 | 54,5 |

B) The **sound power level** in the **return fan (optional)** should be taken into account for the silencer calculation:

| BCP junior | 20   | 30   | 40   | 50   | 60   | 70   | 80   | 90   |
|------------|------|------|------|------|------|------|------|------|
| dB(A)      | 42,5 | 43,5 | 42,5 | 44,5 | 46,5 | 50,5 | 51,5 | 51,5 |

## OPTIONAL ELECTRICAL HEATER

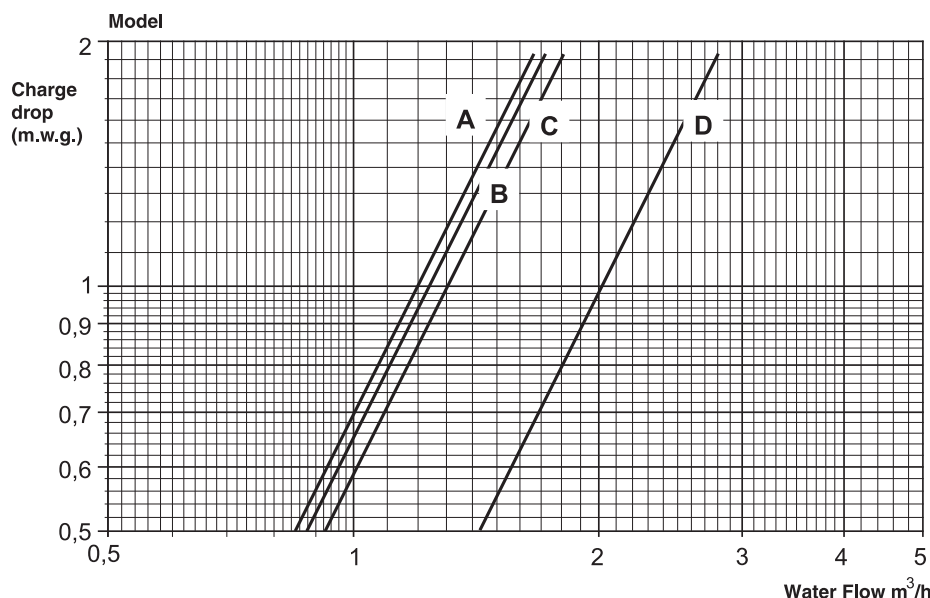
### ELECTRICAL CONNECTIONS SECTION AND AVAILABLE POWER

| BCP junior   | VOLTAGE       | 230 V / I ph / 50Hz |       |       |        |  |  |
|--------------|---------------|---------------------|-------|-------|--------|--|--|
|              | POWER (W)     | 3.000               | 4.000 | 5.000 | 6.000  |  |  |
| 20 / 30 / 40 | CURRENT (A)   | 13,0                | 17,4  | 21,7  | 26,1   |  |  |
|              | SECTION (mm²) | 2,5                 | 4     | 4     | 6 XLPE |  |  |

| BCP junior   | VOLTAGE       | 400 V / III ph / 50 Hz |       |       |               |               |               |
|--------------|---------------|------------------------|-------|-------|---------------|---------------|---------------|
|              | POWER (W)     | 3.000                  | 6.000 | 9.000 | 12.000        | 15.000        | 18.000        |
| 40           | CURRENT (A)   | 4,3                    | 8,7   | 13,0  | NOT AVAILABLE |               |               |
|              | SECTION (mm²) | 1,5                    | 1,5   | 2,5   |               |               |               |
| 50           | CURRENT (A)   | 4,3                    | 8,7   | 13,0  | 17,3          | NOT AVAILABLE |               |
|              | SECTION (mm²) | 1,5                    | 1,5   | 2,5   | 4             |               |               |
| 60           | CURRENT (A)   | 4,3                    | 8,7   | 13,0  | 17,3          | 21,7          | NOT AVAILABLE |
|              | SECTION (mm²) | 1,5                    | 1,5   | 2,5   | 4             | 6             |               |
| 70 / 80 / 90 | CURRENT (A)   | 4,3                    | 8,7   | 13,0  | 17,3          | 21,7          | 26,0          |
|              | SECTION (mm²) | 1,5                    | 1,5   | 2,5   | 4             | 6             | 10            |

**NOTE:** Calculations made for installation B type according to table 1 of ITC-BT-19 (REBT 2002) and PVC insulation = Polyvinyl chloride. Maximum temperature 70°C (permanent service).

## WATER PRESSURE DROP IN THE EXCHANGER (OPTIONAL)



| BCP junior | MODEL        |
|------------|--------------|
| A          | 40           |
| B          | 50           |
| C          | 60           |
| D          | 70 / 80 / 90 |

## CORROSION RESISTANCE

In the plates exchanger, corrosion problems may occur due to variations in water characteristics. The plates exchanger is made up of SMO 254 stainless steel and the material used for the plates welding is copper or nickel (BCP JUNIOR = nickel welding). Hereafter is indicated the water resistance to corrosion depending upon different compositions:

| Water contents                     | Unit  | Heat exchanger, copper brazed (WP type) | Heat exchanger, nicked brazed (NP type) |
|------------------------------------|-------|---|---|
| pH - value                         |       | 7 - 9                                   | 6 - 10                                  |
| Saturation index S(delta pH-value) |       | -0,2 < 0 < +0,2                         | No specifications                       |
| Total hardness                     | °dH   | 6 - 15                                  | 6 - 15                                  |
| Conductivity                       | µS/cm | 10 ... 500                              | No specifications                       |
| Filtered substances                | mg/l  | < 30                                    | < 30                                    |
| Chlorides                          | mg/l  | < 20.000 (upper values consult)         |   |
| Free chlorine                      | mg/l  | Consult                                 |   |
| Hydrogen sulphide                  | mg/l  | < 0,05                                  | No specifications                       |
| Ammonia                            | mg/l  | < 2                                     | No specifications                       |
| Sulphates                          | mg/l  | < 100                                   | < 300                                   |
| Hydrogen carbonate                 | mg/l  | < 300                                   | No specifications                       |
| Hydrogen carbonate / Sulphates     | mg/l  | > 1                                     | No specifications                       |
| Sulphides                          | mg/l  | < 1                                     | < 5                                     |
| Nitrate                            | mg/l  | < 100                                   | No specifications                       |
| Nitrite                            | mg/l  | < 0,1                                   | No specifications                       |
| Iron                               | mg/l  | < 0,2                                   | No specifications                       |
| Manganese                          | mg/l  | < 0,1                                   | No specifications                       |
| Free carbonic acid                 | mg/l  | < 20                                    | No specifications                       |

**NOTE:** The stated values are guide values which show variations under certain operating conditions.

**IMPORTANT:** If the pool water is introduced directly into the unit water condenser, the addition of chlorine should never be carried out before the inlet to the condenser.



## NOTES

[illegible]