**Quick Start-up Guide**

**1. Quick Start-up Guide**

**2. Installation**

Refrigerant circuit installation reference

Min Distance to installation

Connections:
- Liquid (B)
- Suction

**3. Design Pressure Line Components**

Line components like piping, fittings, valves, evaporators, etc., must follow the rules on the tables below

- Liquid line
- Suction line

**4. Pressure Test**

Strength and tightness test must use inert gas, such as nitrogen, in the pipework and connections used in the installed site. Open the compressor door (1) with the main switch (1a) in Off position.

**5. Network Connection**

For RS485 serial line wiring it is recommended to use BELDEN 8762 AWG20 type shielded cable and to keep the length of the line as short as possible (RS485 max 32800/1000m).

Do not create bifurcations on the line or star connections.

In case of split system follow also step 17

**6. Preparation for Start-up**

Before having the complete system running make sure that all electronic thermostatic valves of the users are correctly programmed.

To start the system it is necessary to follow this sequence of operations:

- Set the disconnector (1a) of the electrical panel (3) to ON to energize the condensing unit;
- Set the electronic control to ON via the display (2) and carry out the operations indicated.

In case of split system follow also step 18

**7. Display**

- **Buttons**
  - ALARM: Shows the list of active alarms and access to the alarm logs.
  - PRG: Enters the main menu.
  - BACK: Return to the previous page.
  - UP: Switches to the upper value in a list or increases the value of a variable highlighted by the cursor.
  - DOWN: Switches to the lower value in a list or decreases the value of a variable highlighted by the cursor.
  - ENTER: Enters the selected sub-menu(s) or confirm the set values.

- **LED Indicators Management**
  - Yellow: Hecz CO₂ Control in state of ON.
  - Green: Hecz CO₂ Control in powered status.

**8. Display Details**

- **Buttons**
  - ALARM: Shows the list of active alarms and access to the alarm logs.
  - PRG: Enters the main menu.
  - BACK: Return to the previous page.
  - UP: Switches to the upper value in a list or increases the value of a variable highlighted by the cursor.
  - DOWN: Switches to the lower value in a list or decreases the value of a variable highlighted by the cursor.
  - ENTER: Enters the selected sub-menu(s) or confirm the set values.

**9. Evacuation**

After the test, release the internal pressure by opening the valves:
- RSD discharge;
- RSS Liquid;
- RSS suction;
- R1 main suction;
- R2 main liquid

For BT/LT machines, a magnet must be used to open the YVO solenoid valve, as shown in the figure below, with the machine powered off. Remove the connector (1); remove the coil (2); insert the magnet (3).

The back pressure valve (HPV) after the gascooler must be forced open, by one of the following procedures:
- Remove the valves’ solenoid coil and insert and rotate the magnet (OPTIONAL EVMA00000)

**10. Vacuum**

The duration of the vacuum phase is variable as it depends on several factors, but must nevertheless be at least 24 hours. In addition, the vacuum level of at least 450psig 0.3 mbar, that must be reached, have to remain constant over time.

- **CAUTION:** Before proceeding with the vacuum phase, check that all the valves on the machine and on the system are open.
- **CAUTION:** The vacuum phase can take place when the machine is not electrically powered.
- **CAUTION:** Do NOT start the compressors in vacuum conditions and without refrigerant, to avoid irreparable damage.

The IND1 indicator of liquid passage must be green to indicate the absence of humidity. The service valves to which the vacuum pump must be connected are the following:
- RSD discharge;
- RSS Liquid;
- RSS suction;
- RSLIQ Liquid

The YVO valve and the back pressure valve (HPV) after the gascooler must be open.
**11 OIL PRE-CHARGE**

Before terminating the vacuum procedure, 0.22 lb of oil must be filled in the circuit. The oil in the compressor is PAG 100 (polyalkylene glycol) made by FUCHS RENSON PAG 100.

Caution: Do not use any oil other than the one specified by the manufacturer. For further information, contact the Manufacturer’s Technical Department.

Proceed as follows:
- Close general suction valve R1;
- Close general liquid valve R2;
- Also close valve R3 (BT/LT versions only);
- Use service valve RSS to charge the oil while applying suction with the vacuum pump to service valve RSD (TN/MT versions) or RSS (BT/LT versions);
- When pre-charging is complete, close the RSS valve and RSS valve (TN/MT) or RSS valve (LT/PT);
- Continue the vacuum procedure by re-opening R1 and R2 valves while the vacuum pump is connected to RSS and RSD (both opened).

**12 REFRIGERANT PRE-CHARGE**

The refrigerant must be only carbon dioxide – CO2 – R744 (Purity ≥ 99.99%) H2O ≤ 10 ppm, O2 ≤ 10 ppm, N2 ≤ 50 ppm.

**13 ON-OFF**

**14 REFRIGERANT CHARGE**

For the refrigerant charge followings are necessary:
- Reassemble the coils of high valves (HPV) if previously removed;
- Reassemble the YVO valve solenoid coil (if present);
- Switch the condensing unit and/or compressors ON from electronic control;
- Charge the refrigerant into RS/LQ valve in liquid phase and RSS valve in vapor phase.

**15 OIL CHARGE**

The amount of oil may need to be adjusted depending on the refrigerant charge, with reference to the following table.

<table>
<thead>
<tr>
<th>Oil Load</th>
<th>R744</th>
<th>UP to 13lb/6kg</th>
<th>OVER 13lb/6kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIL LOAD</td>
<td>PAG100</td>
<td>DO NOT ADD OIL</td>
<td>ADD 0.11lb/50g Oil FOR EACH 2/3lb/4.5kg of REFRIGERANT IN EXCESS</td>
</tr>
</tbody>
</table>

**16 CONDENSING UNIT COMMISSIONING**

The condensing unit is pre-commissioned by the factory. For further information, contact the manufacturer. For further information, contact the Manufacturer’s Technical Department.

**17 PREPARATION FOR START-UP OF SPLIT SYSTEM**

Before stating the split system, the kit of cables (option) must be installed.

**18 START-UP FOR COLD ROOM CONTROLLER “DC CELLA”**

Displayed variables:

- **CO2NEX**
- **COLDROOM TEMPERATURE**
- **COLDROOM THERMOSTAT**

The kit of cables can be ordered separately in different lengths, and consists of 5 cables:
- CS2= RS-485 connection;
- CS1= signal connection (low voltage);
- CP1/2=3/4-power connection

The condensing unit is pre-configured by the manufacturer and needs only to be powered-up and follow the procedure below on the condensing unit controller:

- The evaporator wirings involve both the defrost and fan connections but also the YVO valve solenoid coil connections.

**19 SPLIT SYSTEM COMMISSIONING**

Check the followings before system start up:

- Serial cable connection (RS-485) between the EVD Ice driver and the DC Cella panel;
- Serial cable connection (RS-485) between the EVD Ice driver and the DC Cella panel;
- Power cable connection to the heating elements and evaporator fans;
- EVD Ice driver power connection;
- System power on.

The DC Cella controller controls communications between the components and if a connection failure is reported, check the serial connections.

Changing the setpoints

- [Example coldroom temperature: MT 32°F/0°C LT -4°F/-20°C]
- Wait until the system is stable and perform the necessary optimisations, referring to the manual and to the software manual of the controls.

Rivacold offers a set of default configurations suited to every type of system and food. 1°F = 1.8°C • 2°F = 1.1°C • 3°F = 1.7°C • 4°F = 2.2°C • 5°F = 2.8°C • 6°F = 3.4°C • 7°F = 4°C • 8°F = 4.4°C • 9°F = 4.8°C • 10°F = 5.6°C