

DESHUMIDIFIER CONSOLES

Models DH-60 / DH-90 / DH-120

INSTALLATION AND OPERATING INSTRUCTIONS

(to be read carefully and kept for future reference)



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■ Safety instructions and recommendations

TO BE READ CAREFULLY

■ Children and physically or mentally impaired persons:

These dehumidifiers may be operated by children at least 8 years old and physically or mentally impaired persons if:

- they are adequately supervised.
- they have been provided with instructions concerning safe operation of the device.
- they understand the associated risks.

Neither cleaning nor maintenance may be entrusted to children or physically or mentally impaired persons.

Place the control panel out of the reach of children to prevent them from operating the device.

■ Electrical safety:

- Install the machine in compliance with the regulations in effect in the country of installation (notably electrical regulations), notably, respect safety distances from water.
- DH dehumidifiers are not electrically protected against the intrusion of water (rain, splashing).

In France, regulations (standard C 15-100) stipulate the following:

- The dehumidifier should be installed at a distance of more than 3 m from a bath, private above-ground spa or shower stall.
- The dehumidifier should be installed at a distance of more than 3.5 m from an in-ground spa or pool.
- A means to instantly cut power to the device must be installed at the head of the line (circuit breaker or switch).
- A thermal magnetic circuit breaker or fuse holder+fuse with a breaking current rated for the amperage of the device must be installed at the head of the line.
- We strongly recommend installation of a 30mA (trip current) residual current device upstream from their power supply.
- Have the device wired in by a qualified professional.
- At least once a year, check that electrical wire contacts are correctly tightened.
- Check regularly that the power cable is in good condition, in the event of damage to the cable (cut, crushed, wear, etc.), have it replaced immediately by a qualified professional.
- Always cut the power to the device upstream prior to any technical intervention on the device (repair, maintenance).
- The heating element (optional) must be installed by a qualified professional.

■ Fire prevention:

- Do not use the dehumidifier to extract solvent vapours from the air, more generally, never use the device in a flammable or explosive atmosphere.
- Do not store inflammable liquids or materials close to the device.
- Do not splash liquids onto the device.
- Do not insert objects through the slots in the grate, teach children not to do this either.
- Do not obstruct air flow at the intake or exhaust grates by covering the machine with material, or a box or by positioning the machine with the front face too close to a partition.
- In the event of abnormal noise, odour or smoke, shut the dehumidifier down immediately and cut the power supply. Never attempt to repair the device yourself, contact your sales agent.
- Leave a gap of at least 80 cm in front of the machine and 30 cm on either side of the machine in order to facilitate technical interventions.

■ Operating principle

FAIRLAND console dehumidifiers are used to limit the relative humidity in an enclosed space containing a pool or spa to a value selected by the user (between 30% and 99%). They should be installed inside the room to be dehumidified.

This dehumidifier is designed to operate with an ambient temperature between 10°C and 38°C. Performance data is not guaranteed outside this range.

If the dehumidifier is fitted with the heating option, it may be used to increase the room temperature to a value selected by the user (between 18°C and 32°C). As soon as the room temperature drops below this value, the heating system will be activated to raise the temperature to the set point. Should the temperature spontaneously rise above the set point, heating will remain stopped.

This paragraph will help explain how a FAIRLAND dehumidifier works and provide a better understanding of the importance of the provisions concerning installation, use and maintenance set out in this document.

- A heat transfer fluid travels in a loop in a copper circuit, as it travels it experiences the following cycle:
- Step 1: warm, humid ambient air from the room to be dehumidified is drawn at a high flow rate over a fin-type radiator in which cold fluid is circulating, this is the evaporator. Upon contact with the evaporator, the air temperature falls until it reaches the condensation point of water vapour, which causes the water to condense in fine droplets. At the same time, the heat transfer fluid recovers the calories given up by the ambient air.
- Step 2: the fluid enters the compressor where it experiences a high increase in pressure and an increase in temperature.
- Step 3: the cold, dehumidified air then passes over a second fin-type radiator located behind the evaporator, the condenser, through which the hot heat transfer fluid from the compressor is circulating, this heats the cold, dehumidified air before it is returned to the pool room.
- Step 4: the heat transfer fluid passes into the expansion chamber where it is returned to its initial temperature and pressure, before returning to step 1 to restart the cycle.

Thus, the compressor and the expansion chamber is composed of two half-loops:

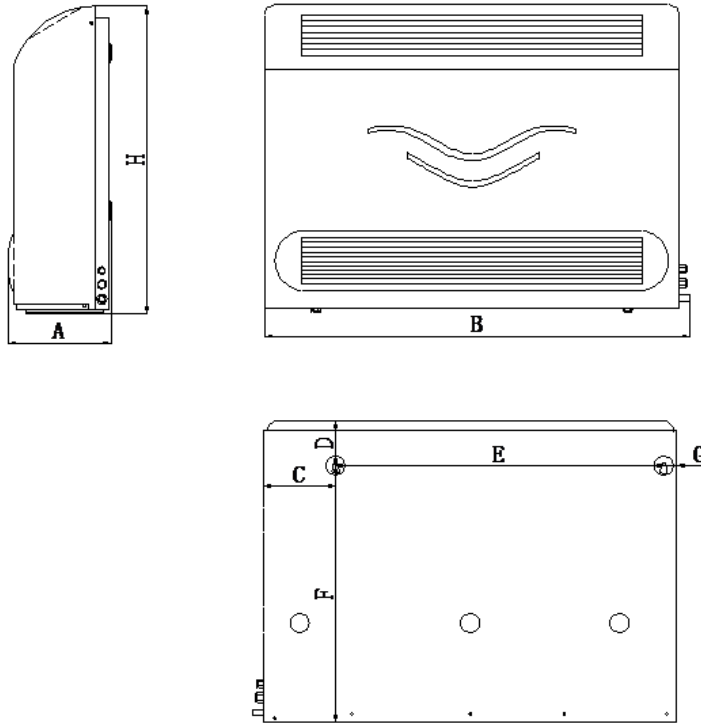
- the half-loop on the condenser side is called the HP (High Pressure) loop.
- the half-loop on the evaporator side is called the LP (Low Pressure) loop.

Start up of the compressor is slaved to the dehumidification demand.

The user may choose to allow the fan to run continuously or for the fan to stop when there is no dehumidification or heating demand (refer to setting of parameter C8 in paragraph VI.11). Running the fan at low speed in the absence of a dehumidification or heating demand creates continuous movement that homogenises the air in the room and allows more precise control of these two parameters.

■ Dimensions and technical data

Dimension (mm)	Ref							
	A	B	C	D	E	F	G	H
DH60	286	886	200	126	613	718	36	860
DH90	286	1186	200	126	913	718	36	860
DH120	286	1186	200	126	913	718	36	860



Technical data	DH60	DH90	DH120
Dehumidification capacity (1) litres/24h	60	93	120
Nominal input power (dehumidification mode) W	990	1690	2000
Maximum input power (dehumidification mode) W	1200	2000	2450
Heating power output in dehumidification mode (2) W	2200	4200	5500
Power of the auxiliary heating element (option) W	2000	3000	3000
Air flow rate, fan at full speed m ³ /h	800	1000	1200
Power supply	monophasé 230 V~50Hz		
Nominal/ maximum current (without auxiliary element) A	4,58 / 5,20	7,83 / 9,15	9,15 / 10,8
Acoustic pressure at 5 metres (dB(A))	39,5	40,8	40,8
Net weight/ gross weight (without auxiliary heating) kg	53 / 68	70 / 86	75 / 91
Quantity of refrigerant R 410 A g	800	1050	1300
Overall dimensions (length*width*height)	855x242x848	1155x280x848	

(1) : the dehumidification capacity refers to the volume of condensates recovered in one day at a constant temperature of 30°C and relative humidity of 70%.

(2) : ambient temperature 30°C, relative humidity 70%.

Technical data is susceptible to modification to reflect product upgrades.

The machine is fitted with HP and LP safety mechanisms controlled by a pressure switch.

The LP pressure switch stops the compressor if the pressure drops below 0.05 MPa and automatically resets when the pressure rises above 0.15 MPa.

OFF : 0.05 MPa

ON : 0.15 MPa

The HP pressure switch stops the compressor when the pressure rises above 4.2 MPa, and automatically resets when the pressure drops below 3.6 MPa.

OFF : 4.2 MPa

ON : 3.6 MPa

The machine is fitted with a n air circulation defrosting function.

■ Installation

Take into account the minimum distance limitations between the dehumidifier and the water body, specified in the regulations in effect, when selecting the installation site.

If the machine is free-standing, it must be set on solid, stable and horizontal surface.



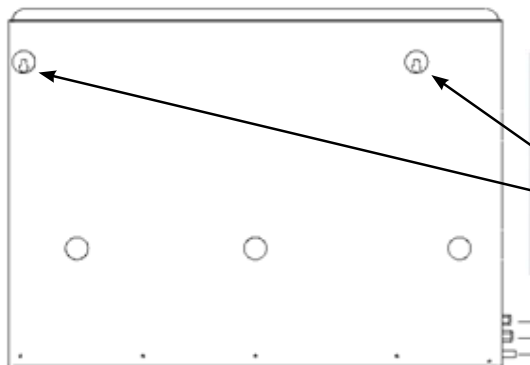
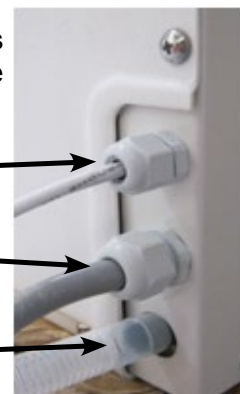
The dehumidifier is delivered with 4 height adjustable, vibration damping pads to be screwed into place beneath the machine.

A flexible, translucent condensate drainage tube (length 2 m) is also supplied. This should be connected to the machine under the power cable connection.

Control pad cable

Power cable

Condensate drainage tube (to be installed)



The dehumidifier may also be mounted on a wall using the two slots located on the rear panel. Before mounting the device on a wall, verify that the wall, and the means of anchoring it to the wall, will support the weight of the machine.

The remote installed control pad is fitted with a 10 m cable attached by a quick disconnect fitting. The control pad is not watertight so it should be protected from the elements.



The control panel is delivered with a wall mounting bracket.



Support de fixation

Panneau arrière commande

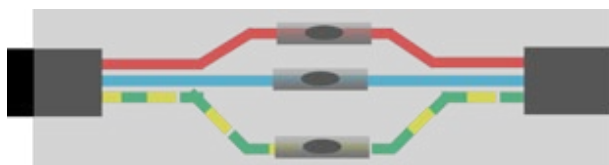
1. Remove the 2 screws from the mounting bracket.
2. Mount the bracket on the wall in the desired position (out of the reach of children) using the 2 central slots or the 4 peripheral slots (screws and bushings are not supplied).
3. **The cut out for the cable should face down** (to avoid streaming of condensates inside the control panel).
4. Unclip the rear casing of the control panel.
5. Fix the rear casing of the control panel to the bracket using the 2 screws previously removed from the mounting bracket.
6. Clip the control panel onto its rear face.

■ Electrical wiring

The power cable is comprised of three strands (live = brown ; neutral = blue ; earth = green and yellow), it is 1.5 m long.

To extend the power cable, use a cable with strands of the same cross section if the total length of the cable will not exceed 10 m. If the cable is longer than 10 m, use an extension cable with strands that have a wider cross section.

Solder the wires together, use heat shrink tubing to insulate the soldered connections.



The power cable must be connected to a thermal magnetic protection device or a fuse holder + fuse, rated for the machine's power consumption. We strongly recommend that the machine's power line be protected by a 30 mA RCD.





Even with an extension, the control cable may not be longer than 50 meters. To extend the cable, use cable with the same cross sections and connect the wires as described previously.

Type		DH 60	DH 90	DH 120
Residual current device	Nominal current (Amps)	20	30	40
	Trip current mA	30	30	30
d curve thermal magnetic circuit breaker - Nominal trip current in (A)	DH without heater	7 (8 if not adjustable)	11 (16 if not adjustable)	12 (16 if not adjustable)
	DH with heater	16	25	26 (32 if not adjustable)
Power cable (mm2)		3 x 2,5	3 x 4	3 x 4
Remote installed control pad cable (mm2)		3 x 0.5	3 x 0.5	3 x 0.5

■ Commissioning and operation

Important: The dehumidifier is designed to operate at an ambient temperature of between 5°C and 35°C. Correct operation is not guaranteed outside this range.

The device has 4 operating modes:

- Dehumidification only 
- Fan only (air circulation) 
- Dehumidification + heating (if the heating option is installed) 
- Heating only (if the heating option is installed) 

■ Plugging the device into the mains:

The default display appears on the control pad screen:

- on the left, the relative humidity (%) in the room as measured by the machine (humidity sensor)
- on the right, the temperature (°C) in the room as measured by the machine (temperature sensor)



■ Starting up the device:

Press the On/ Off button: 

The active operation symbol appears on the screen.

■ Selection of the operating mode, by successive presses on the M button:

In dehumidification mode, if there is a dehumidification demand, the compressor will start one minute after the fan (time delay).

■ Selecting the humidity set point:

(Dehumidification mode - with or without heating):

It is possible to select the relative humidity that should not be exceeded in the room, the allowed range is between 30% and 99%. Note that the dehumidifier cannot increase the relative humidity in the room if it falls below the set point.

To display the current set point value on screen, press one of the arrow keys (▲ or ▼) once.

While the set point flashes on screen, use the arrow keys (▲ and ▼) to increase or decrease this value in increments of 1% until the desired set point is displayed.

The screen will automatically revert to the default display after 8 seconds of inactivity.


Nota bene : The relative humidity control differential is +/-5%. As soon as the relative humidity rises at least 5% above the set point, the compressor and the fan will start if the machine is in dehumidification mode or in dehumidification + heating mode (option).

Inversely, as soon as the relative humidity falls at least 5% below the set point, the machine will stop dehumidifying the air.


■ Selecting the temperature set point (if the heating option is installed and active):


If the optional heating element is installed, the parameter C1 will need to be configured, see paragraph VI.11.

It is possible to select the minimum air temperature to be maintained in the room. If the temperature in the room rises above the set point, the dehumidifier will not be able to cool it.

- In heating only mode: 

To display the temperature set point, press one of the arrow keys (▲ or ▼) once. While the set point is flashing, press the arrow keys (▲ and ▼) to increase or decrease the set point temperature in increments of 1°C. The screen will automatically revert to the default display after 8 seconds of inactivity.

- In dehumidification + heating mode: 

Press one of the arrow keys (▲ or ▼) once, and then press the  button to display the temperature set point. Select the desired set point as described above.

As soon as the ambient temperature measured by the machine drops at least 1°C below the set point, the element will start to heat. Heating will stop as soon as the ambient temperature measured by the machine rises at least 1°C above the set point.

■ Programming a delayed start or a delayed stop:

A delayed stop can only be programmed while the machine is running.

Press the  button.

Using the arrow keys ▲ or ▼, select a shut down delay of between **1** and **12** hours maximum (one hour increments).

Allow the screen to return to the default display.

The **OFF** symbol appears in the bottom of the screen, confirming that the **OFF** operation has been registered and that the machine will shut down after the programmed delay.


A delayed start can only be programmed while the machine is off.

Press the  button.

Using the arrow keys ▲ or ▼, select a start up delay of between **1** and **12** hours maximum (one hour increments).

Allow the screen to return to the default display.

The **ON** symbol appears in the bottom of the screen, confirming that the **ON** operation has been registered and that the machine will start after the programmed delay.

To cancel a delayed start or stop, press the  button to display the delay (it will begin to flash), now press the On/Off button (the machine will either start or stop depending on its current status).

■ Setting the fan speed:


While the machine is running, press the **SET** button to select the fan speed: High or Low

■ Automatic defrosting:

When the ambient temperature is low (around 10°C), the surface temperature of the fins and evaporator tubes could be below 0°C while the machine is running in dehumidification mode. This can lead to freezing of the condensates on the evaporator.



Accumulated frost will obstruct the air flow and hinder the refrigeration cycle. Before this phenomenon becomes too pronounced, the machine is programmed to automatically trigger a defrosting cycle by stopping the compressor and the circulation of air.

The symbol  will appear on the control panel screen.

The air will gradually melt the frost, the compressor will restart automatically once the frost is completely melted.

Nota bene: For the defrosting function to be effective, it is important not to run the machine at ambient temperatures below 10°C.

■ Shutting down the device:

Press the On/ Off button.

The compressor will stop, approximately 30 seconds later, the fan will also stop.

Nota bene There is a minimum time delay before the fan and compressor can be restarted (approximately 30 seconds for the fan and approximately 2 minutes for the compressor).

■ Locking/ unlocking the key pad:

To deactivate the key pad, press the two arrow keys (▲ and ▼) simultaneously and hold them down for three seconds.

The following symbol will appear on screen: 

To reactivate the key pad, repeat this operation.

■ Verifying and setting the operating parameters:

This menu is reserved to qualified maintenance professionals.

To enter the parameter setting menu, hold the SET key down for at least 3 seconds. Use the arrow keys ▲ and ▼ to scroll through the parameters until the parameter that you wish to verify or modify is displayed on screen.

While the dehumidifier is running, it is possible to view the parameters but not to modify them.

While the machine is stopped, parameters may be both viewed and modified.

N°	Parameter code	Parameter title	Allowed values	Default value
1	C1	With or without heating	0 without / 1 with	0
2	C2	Heating element temperature	From -20°C to +99°C	Value measured
3	C3	Humidity compensation to calibrate the humidity sensor	From -5% to +5%	0%
4	C4	Minimum time lapse between two defrosting cycles	From 15Min to 90Min	20Min
5	C5	Defrosting cycle start temperature	From -10°C to 10°C	-1°C
6	C6	Defrosting cycle end temperature	From 0°C to 15°C	8°C
7	C7	Maximum duration of the defrosting cycle	From 2Min to 12Min	8Min
8	C8	Fan operation once the set point is reached	0 the fan stops at the set point / 1 the fan switches to low speed at the set point	1
9	C9	Exhaust air temperature	-20°C~99°C	Measured value
10	CA	Refrigerant temperature at the evaporator inlet	-20°C~99°C	Measured value
11	Cb	EXV step no.	100~500P	Measured value
12	CC	Overheating target value	Between -20°C and +20°C	5°C

To modify the value of the parameter displayed, press the SET key. The value of the parameter will begin to flash, use the arrow keys (▲ and ▼) to modify the parameter. Press the SET key to validate the modification.

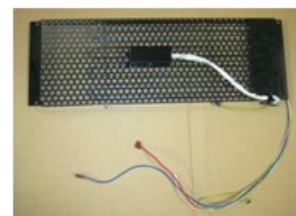
Press  or .

■ Installation of the heating element (option)

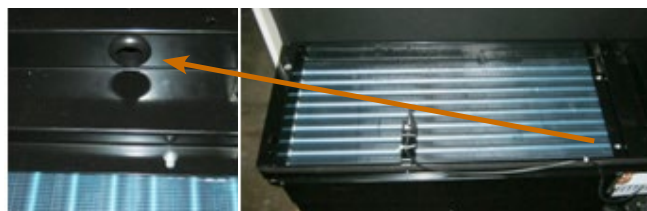
The heating element should only be installed by a qualified professional.

Stop the machine and cut the power supply to the dehumidifier.

1. Remove the plastic casing: extract the 2 Phillips head screws located midway up each side, and the 3 Phillips head screws on the bottom of the machine on each side. Also, to facilitate removal, take the metallic strip off the back of the machine. Free the casing by pulling it forward.



2. Place the element flat over the fins and tube condenser with the black grating facing upwards and the connections oriented towards the electrical box. Feed the electrical wires through the opening located on the right hand side.



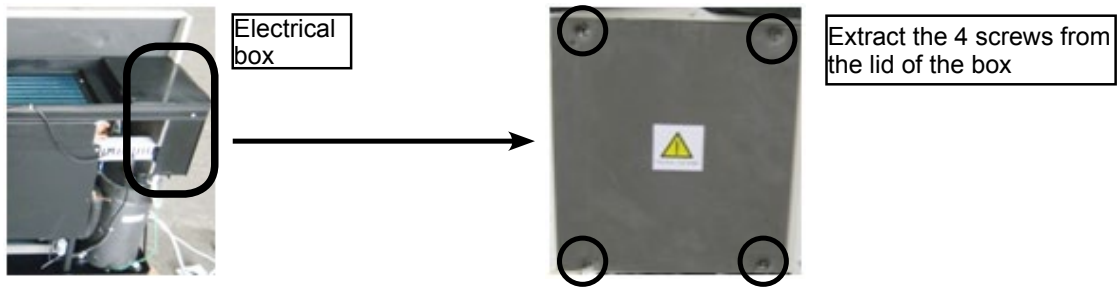
Align the holes in the heating element plate

with those of the base and insert the 4 screws to attach the heating element to the machine.

3. Open the lid of the electrical box



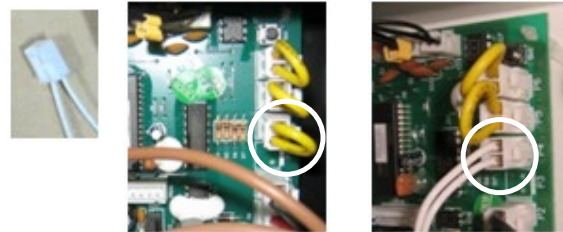
4. Feed the wire into the box through one of the openings located at the bottom of the box.



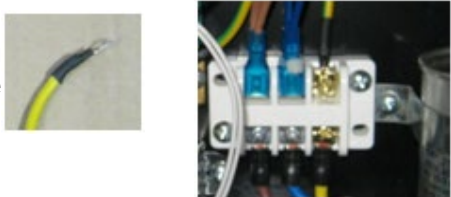
5. Connect the white signal wire to the circuit board at the yellow bridge on port P4



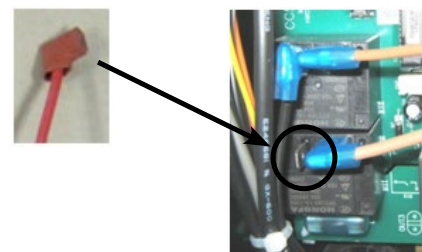
6. Connect the earth lug to the earth terminal on the connector block, over the one already in place.



Connect the neutral lug to the rear neutral pin on the white terminal. First remove the neutral double lug already in place. Connect the neutral cable of the heating element to the rear pin, then reconnect the double lug to the front pin using one of the two lugs.



7. Connect the female live lug to the free male lug of one of the two black components.
8. Put the lid of the electrical box back in position.
9. Replace the dehumidifier casing and the screws.
10. **Modify the parameter C1: change the value to 1.**



■ Upkeep – maintenance

The casing may be cleaned with a damp cloth, if necessary wetted with some neutral domestic cleaning agent.

Never use solvents.

Never spray the machine with a water jet.

Check regularly that the power cable connections, heating element connections (if this option is installed), and the connections inside the electrical box are correctly tightened.

Check regularly that the air intake filter, located behind the air intake grate at the bottom of the front casing, is clean. If necessary, clean it with a cloth or soft bristle brush.



■ Error codes and trouble-shooting

■ Error codes:

Code	Meaning	Safety measure triggered
E1	Faulty ambient air T° sensor (sensor or connection cable)	Shuts down the machine
E2	Faulty defrosting sensor (sensor or connection cable)	The machine continues to run
E3	Faulty humidity sensor (sensor or connection cable)	Shuts down the machine
EF	Faulty exhaust air T° sensor (sensor or connection cable)	Turns off the heating element
EH	Refrigerant T° sensor at the evaporator inlet is faulty (sensor or connection cable)	The machine continues to run
E4	HP safety mechanism tripped	Stops the compressor
E5	LP safety mechanism tripped	Stops the compressor
E7	Exhaust air thermal protection tripped	Turns off the heating element
EE	Communication error	Shuts down the machine
EC	Heating element thermal protection tripped	Turns off the heating element

■ Troubleshooting:

Symptom	Probable cause	Possible solution
The dehumidifier will not switch on	Circuit breaker(s) or fuse tripped	Identify the reason for the fault, correct it and reset the circuit breaker or replace the fuse
	On/ Off button set to off	Switch the machine on
	Loose electrical connection	Verify that the remote installed control pad cable and the power cable are correctly tightened
In heating mode, the air is circulating but the air temperature at the inlet is the same as the air temperature at the outlet	T°C set point set to a temperature lower than the ambient T°C	Modify the set point
	3 minute time delay	Wait at least 5 minutes for the heating element to reach temperature
	Bad contact	Check that the heating element connections are correctly tightened
If the problem is not resolved, contact the Procopi agent		