

## Humidity Conditioning Cabinet

HCC/200/C - CW1602, HCC/450/C - CW1604, HCC/750/C - CW1607,  
HCC/1000/C - CW1610, HCC/2000/C - CW1620,

Operating Instructions (V2.0 1119)



**IMPORTANT!** Before taking this instrument in use we strongly advise you to read this manual carefully.



## PRODUCT GUARANTEE

C&W Specialist Equipment Limited (hereinafter C&W) guarantee the cabinet and components included in its manufacture for a period of one year from the date of despatch from its factory according to the shipping documents subject to the below mentioned conditions and excluding the items listed in condition 5 below.

If within the said period any component of the cabinet is found to be defective, C&W will (subject to the conditions of the guarantee and excluded items) exchange or repair such a component free of charge to the end customer. In the event of a local distributor or agent representing C&W, the agent or distributor will be responsible for the repair or replacement of the faulty component. All labour and travelling costs incurred during the replacement will be absorbed by the agent or distributor. C&W will supply the replacement components without charge on condition that the said faulty component is returned to C&W (at the expense of the agent) within the period of the guarantee.

This guarantee is to be additional to and does not take away any of the purchaser's rights under the Sale of Goods Act 1979. Neither does this guarantee supersede any guarantee given by the manufacturers whose services will be employed where appropriate.

### Conditions of Guarantee

1. The cabinet has not been tampered with or repaired by anyone other than an employee or agent of C&W, unless under direct instructions from C&W.
2. The cabinet has been installed correctly as per the instructions of C&W.
3. The cabinet has not been subject to misuse, or to wilful or accidental damage (including damage caused by fire or lightning).
4. The cabinet has been used solely for the purpose for which it was manufactured and kept in and operated to the conditions specified by C & W.
5. The guarantee excludes components that have a limited life span and components that are non mechanical or electrical that fail due to third party damage.

Indicator Lamps

Fuses

Peristaltic Pump Tubing

All other consumable items

Light Bulbs

Salt Solution Filters

Salt Fog Atomiser (Spray Nozzle)

On behalf of the company

Remco Wever

Managing Director

## INTRODUCTION

Our Humidity Cabinets are designed and manufactured to operate to a wide range of tests.

Temperature Range : Ambient to 50°C  $\pm$ 1°C

Humidity Range : 30% to 80% RH  $\pm$ 3%RH

NOTE: The maximum operating temperature of this cabinet for standard and non standard tests is 50°C air temperature.

## CONSTRUCTION

### Outer Cabinet

Manufactured in one piece G.R.P., a moulded unit with floor supports, designed with a recess on the front, housing the control panel.

Colour : Ivory.

### Inner Cabinet

Manufactured from high temperature polyester resins and gel coat, with reinforced walls and base.

Fitted to the base of the cabinet are water baths incorporating heaters, water inlet port, water level control switch and drain (AB Basic Range Only).

Fitted with the ultrasonic system is an air circulation fan. A Pt100 temperature sensor and a thermostat for over temperature protection are fitted with an RH Sensor and RH Transmitter and are built into the cabinet controls.

Standard sample racks are supplied with each cabinet. Test panels are held in the slots cut at 20 degrees to the vertical (different angles are available on request). An assortment of test samples may be placed in the cabinet, special jigs or sample racks may be required to accommodate larger sample up to 50Kg.

Colour : Beige.

### Roof Unit

Manufactured in an insulated polypropylene plastic or clear PVC on request, the roof unit sits in a water trough. There is a silicone seal within the water trap and this prevents the escape of air from the cabinet when the humidity levels are low. When high humidity levels are required water will accumulate in the water trough and this is acceptable, and the water trap should be filled with water when high levels of humidity are required.

Condensation formed during tests resists dripping onto the test samples, by flowing down the apex shape roof unit into the water trough.

The roof unit is raised and lowered with great ease. All roof units are fitted with gas springs.

**NOTE:** Although the water in the water trough is self generated, it is advised that the water is removed on a regular basis and topped up with fresh water.

## SERVICES

### Electrical

240v 50Hz Single Phase Supply (other voltages available on request).

	HCC/200/C	HCC/450C	HCC/750/C	HCC/1000/C	HCC/2000/C
Max Load	2.2Kw	2.2Kw	2.2Kw	4.2Kw	6.2Kw
Mains Supply	13 A	13 A	13 A	16 A	25 A

### Water

Mains water should be connected to the back of the cabinet and made available continuously.

Water supply pressure should be 1.0 to 4.0 Bar maximum pressure. Connect water supply to water inlet at rear of cabinet. Low level heater protection with automatic cut off.

### Mains Air

Compressed air is required (when ordered) to produce an Air Purge/Air Circulation - Drying Phase. Air pressure to be set at 1 Bar to 2 Bar maximum.

### Drainage

The 22mm white plastic overflow pipe should be connected to a drain.

The blue 6mm OD plastic pipe is an overflow pipe from the ultrasonic humidifier and this should be connected to the 22 mm drain.

### Humidification System

The humidification system consists of ultrasonic transducers mounted in a stainless steel box and submerged in water. When activated the ultrasonic transducers charge the water molecules into a fine mist which is then introduced into the main air stream and transported into the chamber. The on/off action is controlled via the humidity sensor located inside the test area. The water level in the humidification system is automatically controlled by a liquid level sensor which activates a water solenoid valve when on low water. The mist generated by the ultrasonic system is introduced into the chamber by a fan mounted on the ultrasonic system.

### Cabinet Heating

All cabinets have ceramic wall heaters mounted in the cavity walls and then insulated so that the heat is transferred into the test chamber.

The temperature is controlled by a Pt100 Sensor.

Temperature Range – Ambient to 50°C.

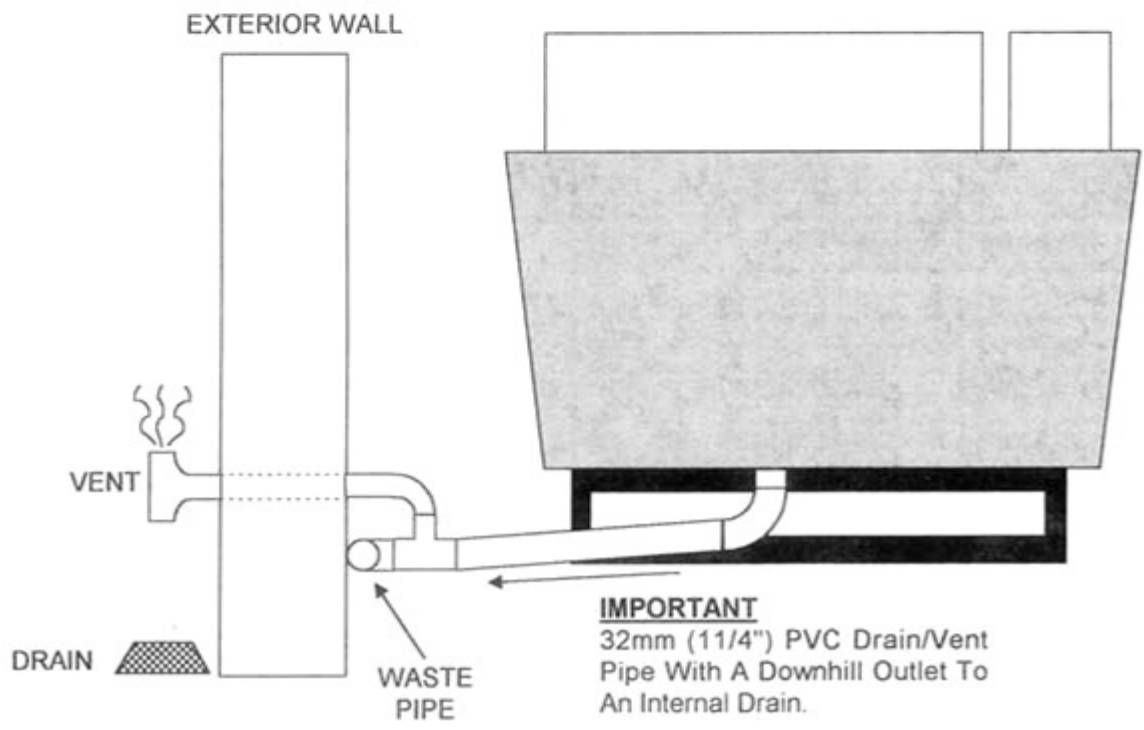
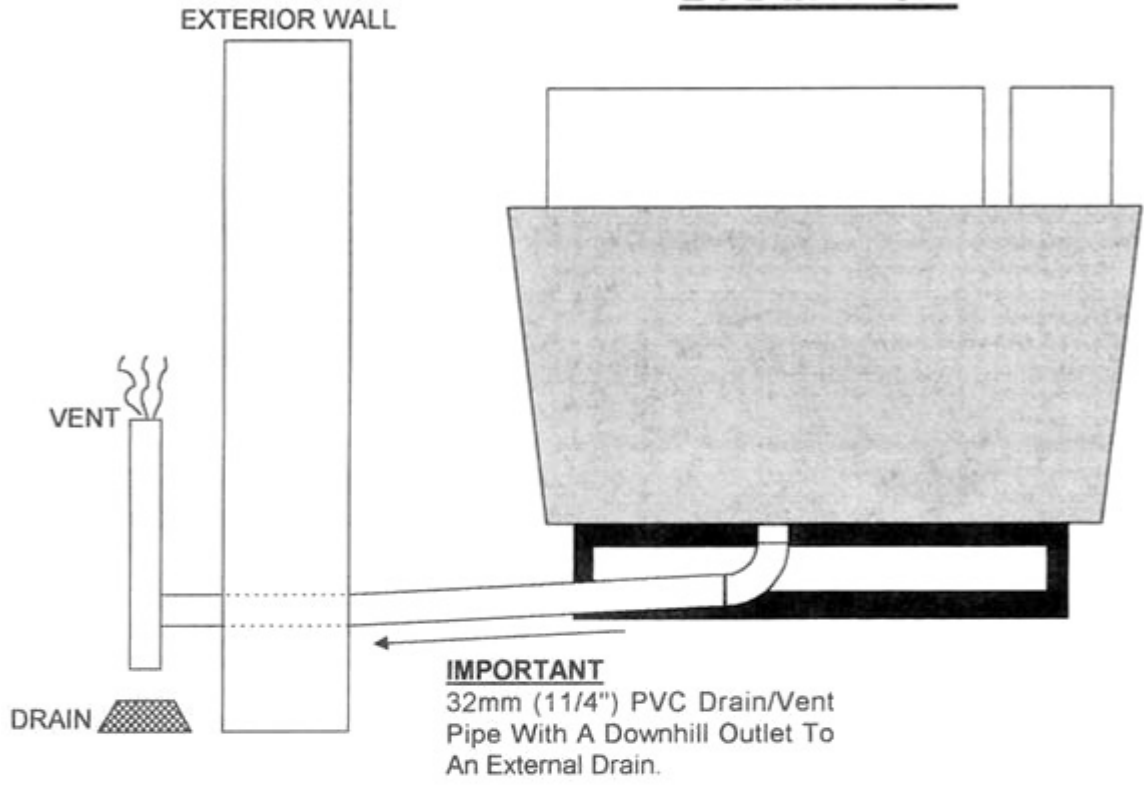
### Overtemperature Protection

A temperature thermostat is included in the electrical circuit and located within the cabinet and pre-set at 55°C as the upper limit. The sensor for this is located inside the chamber in a nylon coated stainless steel pocket.

### RH Sensor and Transmitter

Positioned inside the chamber is a Humidity Sensor which has a Teflon Filter fitted for protection. The RH Sensor is connected to a RH Transmitter which sends the humidity readings to the Humidity Controller.

# METHODS FOR DRAINAGE



## **GAS SPRINGS – SAFETY REQUIREMENTS**

Gas Springs are filled with Nitrogen at very high pressures, and under not circumstances should they be opened, tampered with, or subjected to excessive heat or tension.

Gas Springs should always be treated with respect in the knowledge of the pressure internally.

As a pressurised item, it is recommended that they be returned to the supplier for safe disposal at the end of their useful life.

As the nature of a Gas Spring is to lose its force over a long period of time, it is advisable to periodically check its ability to operate as initially intended, preferably forming part of a planned maintenance structure. Replace if, and when necessary.

## **INSTALLATION INSTRUCTIONS**

For standard compression Gas Springs, we advise the use of ball joints to alleviate possible side loads.

Generally fit with piston down, preferably within 60 degrees to the vertical and avoid the spring travelling through a large arc. It is advisable to keep the spring in a single plane of movement. Failure to adhere to this advice may result in reduced life of the Gas Spring.



## Operation

Once all the services are connected to the cabinet and switched on, then the ultrasonic water bath will fill with water until a high level is acknowledged by the float switch. No humidity is introduced to the chamber until the float switch is closed.

When the water bath has filled to the high level with water, the ultrasonic transducers will start to generate humidity and this will be introduced into the chamber by the fan located on the ultrasonic box.

The rate of temperature change and accurate control is achieved by the heat/cool time cycle, programmed into the temperature controller, which controls the ceramic heaters in the chamber cavity walls.

**NOTE:** *Close lid slowly so that excess air can escape from cabinet.*

## Operation Time

Providing the cabinet is permanently connected to a water supply with a pressure or head of 1.0 – 4.0 Bar maximum then operation may be continuous and unattended.

A satisfactory water level is maintained in the water bath by the automatic filling system.

The temperature is accurately controlled by the controller, protected by a programmed alarm set point, which breaks the heating circuit, this also breaks the heating circuit in an overtemperature situation.

**NOTE:** If high humidity levels are required then the ultrasonic system will be on for long periods and more water will be used.

## Installation

The cabinet should be placed in a convenient position, on a level surface close to your electrical supply, water supply and waste water drain. The cabinet should not be placed in direct sunlight or close to central heating systems as the heating and cooling rates will be effected.

## AIR PURGE FUNCTION

NOTE: *This is not a standard feature, only if ordered as an optional extra.*

The air purge function is required to ventilate the cabinet and also provide air circulation to assist the drying of samples under test when on a cyclic humidity/dry cycle test.

Cyclic Tests include:

ISO 6270-2 Part AHT  
ASTM F1110-09

The air purge event should be programmed so that it automatically starts and stops according to the test method.

Air Pressure: This should be set between 1 Bar and 2 Bar.

NOTE: *Excess air pressure will blow the water out of the water trap and lift the cabinet lid. In this case the mains incoming air pressure should be reduced.*

NOTE: *When this option is incorporated then a vent is recommended in the drainage system to allow excess pressure to escape.*

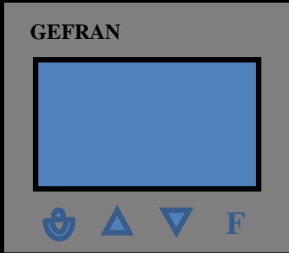
## FAULT FINDING

Should your cabinet not get to the required humidity level check:

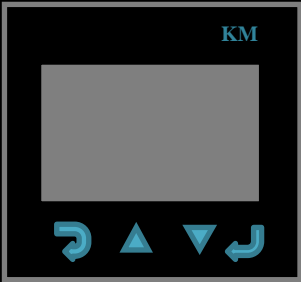
1. Water supply to cabinet is turned on.
2. That there is sufficient water in the ultrasonic system allowing the float switch to close.
3. The set point is set at the required humidity.
4. Has the 24V fuse failed (Fuse 4).

CONTROL PANEL

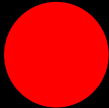
TEMPERATURE CONTROLLER



HUMIDITY CONTROLLER



HOUR COUNTER



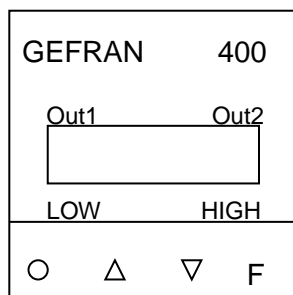
ON/OFF SWITCH

## TEMPERATURE CONTROLLER

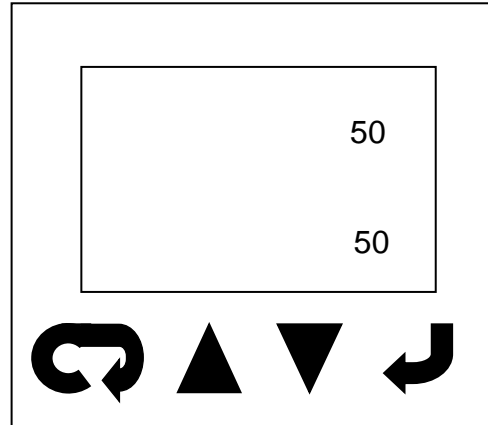
The Temperature Controller is pre-set at 22°C

### To Change The Set Point on Gefran 400

To change the set point press F then the Up and Down Keys to alter the set point.



## HUMIDITY CONTROLLER



### To Change the Humidity Set Point

1. Press the ← key, then press the Up and Down Keys to change the set point. It is preset at 50% RH.
2. After about a minute it will go back to the main screen.



Further information and advice can be obtained from:



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