Lascaux
the spirit of colours

Lascaux Restoration Tools and Equipment

Lascaux Humidification Chamber HC-5

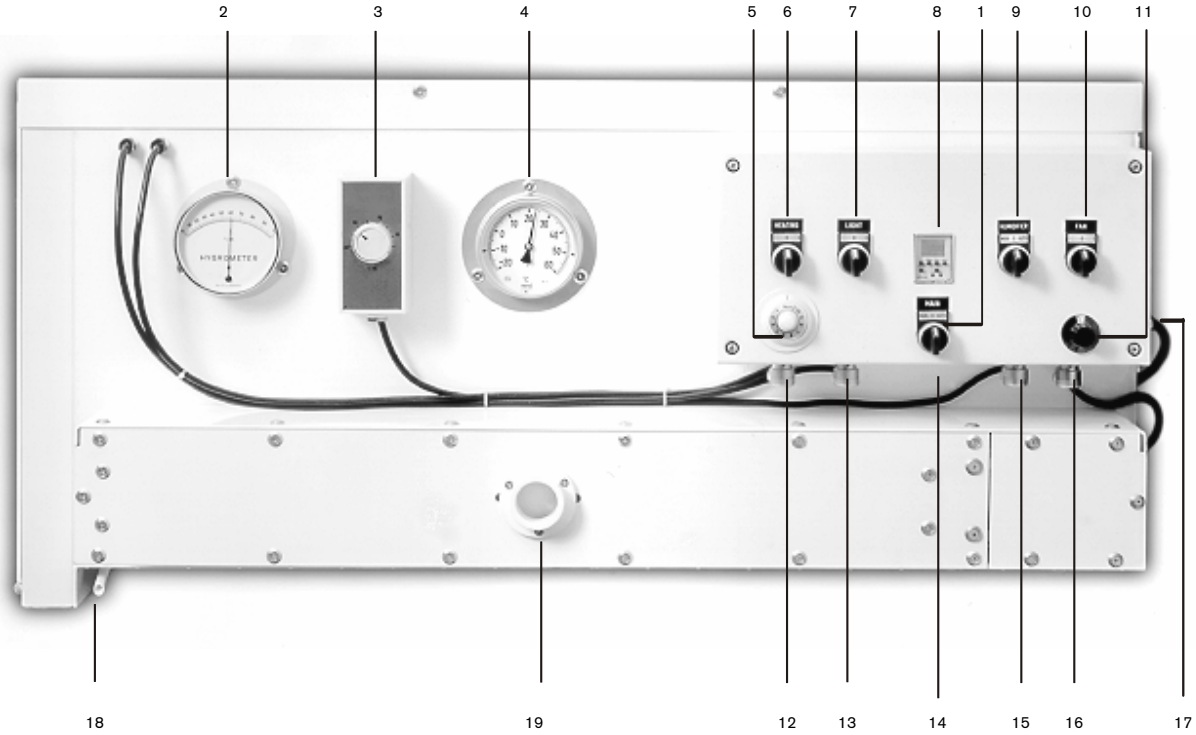
The Lascaux Humidification Chamber HC-5 was developed as complementary apparatus to the low pressure table and allows the controlled humidification of works on paper, especially of fragile items like pastels, charcoal, watercolours, etc.

A cool mist, provided by an ultrasonic humidifier, externally connected to the chamber, evenly penetrates the fibres of the paper. The surface of the paper normally remains "touch" dry.
The various possibilities of controlling the process of humidification allow safe and careful work.

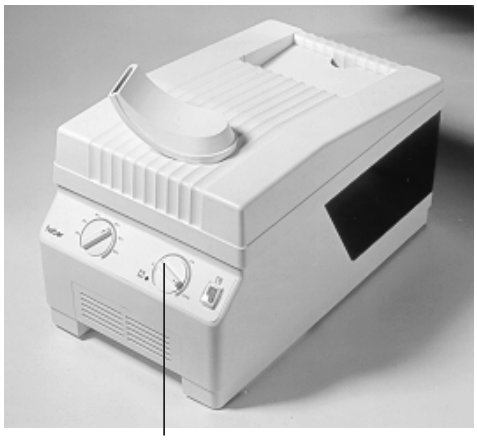
Technical Data

Equipment:	Aluminium case, white stove enameled, with glass front door.
Size:	174 x 109 x 52 cm outside measurement (68,5" x 43" x 20,5") 157 x 103 x 34 cm inner space above nylon grid frame (62" x 40,5" x 13,5") 142 x 95 cm working surface of the nylon grid frame (36" x 37,5")
Electric supply:	230 V, 50 Hz
Internal lighting:	true-lite tube 40 W
Ceiling heating:	max. 150 W
Hygrometer:	scaled 0 - 100% RH
Hygrostat:	control range of RH
Thermometer:	scaled 0° - 60° C
Horizontal fan blower: 18 W	
Ultrasonic humidifier: 50 W	
Control panel:	single switches for light, ceiling heating, fan, humidifier
Potentiometer:	for fan and ceiling heating elements
Main switch:	on/off, manual or by the timer (auto)
Weight:	approx. 100 kg

Overview



1 Main switch: 0 off, 1 manual control, 2 operation by the timer (auto)
2 Hygrometer
3 Hygrostat
4 Thermometer
5 Control potentiometer for ceiling heating elements
6 On / off switch for ceiling heating elements
7 On / off switch for internal lighting
8 Timer for automatic operation of the chamber
9 Switch for operating the ultrasonic humidifier 0 off, 1 manual control, 2 controlled by the hygrostat
10 On / off switch for horizontal fan blower
11 Control potentiometer for horizontal fan blower
12 Plug contact for ceiling heating elements
13 Plug contact for internal lighting
14 Plug contact for hygrostat
15 Pluc contact for ultrasonic humidifier
16 Plug contact for horizontal fan blower
17 Main supply
18 Water outlet
19 Connection hose to humidifier
20 Control potentiometer for amount of moisture



Installation

The ultrasonic humidifier is placed below the humidification chamber and connected to the chamber with the flexible hose. Terminal "A" is put into the humidifier. Whereby care should be taken that the hose is not u-curved in order to avoid condensation in the latter.
Water is filled into the humidifier. Should the water hardness exceed 16° dH, an extra filter is to be used (see enclosed description). The hygrostat of the humidifier is to be set at the maximum in any case, the relative humidity in the chamber being controlled by the hygrostat of the chamber (No. 3), whereas the amount of moisture is controlled by means of the control potentiometer of the humidifier (No. 20). Connect the main supply. The humidification chamber is now ready to be operated.

It is important, as a first step, to always cover the nylon grid frame with a sheet of filter paper or blotting paper. This is necessary to ensure a proper circulation of the moist air.
Place the objects onto the filter paper and close the door. Turn on (No. 10) the ventilator and adjust the speed (No. 11). Since the horizontal fan blower requires quite some power to get started, care should be taken that it is only turned on if speed control potentiometer is set above 7. Do not run the horizontal fan blower below 6.5, it might stop and damage the motor. Switch on the humidifier (No. 9) and adjust the amount of moisture (No. 20).
Turn on the ceiling heating system (No. 6) and set ceiling heating control potentiometer (No. 5) just high enough to avoid condensation on the ceiling of the chamber.
By means of the hygrostat (No. 3), any relative humidity percentage in the range of 30 to 95% RH can be set. For drying objects, set heating system and speed of fan blower at their maximum.

If the internal ligthing is used over a longer period of time, the temperature in the chamber may increase of 2° - 3° C.

The main switch (No. 1) allows manual operation or operation by the timer (No. 8) by use of which objects can be humidified in any chosen interval within 24 hours (see enclosed description for operation of the timer).
After each use, it is recommended to leave the door open for drying.
The chamber should be cleaned periodically with warm water and soap. Commercial disinfectant may be used if necessary. The ultrasonic humidifier has to be maintained following the enclosed description.
If maintenance is required, the design of the chamber allows an easy disassembly of the horizontal fan blower, control panel, heating elements and internal lighting. More over, these items have plug devices to facilitate disassembly.

Practice has shown the importance of carrying out tests to gain the necessary experience allowing for safe control of the humidification process in general and with special regard to the capacity and limit of humidity absorption of the respective object.
Every object has different properties, according to the nature and quality of the paper, the media (water-colour, oil, acrylic, etc.) and the state of conservation. It is very important to determine the ideal ratio of the various functions, i.d. the degree of moisture, the speed of the horizontal fan blower and the temperature by constant control of the object during humidification process. Only this ensures a safe and satisfying work with the Lascaux Humidification Chamber HC-5.

Reference

O. Masson and W. Percival-Prescott: "The use of the Lascaux Humidification Chamber in the treatment of works on paper", paper conservation news, No. 43, 1987.

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