

ELECTROVAP[®] RTH



Steam humidifier

Resistive humidifier

from 3 to 17 kg/h



ELECTROVAP RTH-LC

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ELECTROVAP RTH-LC

Product accreditation

DIRECTIVES APPLIED

Electromagnetic Compatibility Directive :
Low Voltage Directive :
« Machinery » Directive:

89/336/EEC, 2004/108/EC
73/23/EEC, 2006/95/EC
98/37/EC, 2006/42/CE

The humidifier complies with :

EN 61000-6-3: Electromagnetic compatibility generic requirements (residential, commercial and light industries)

- EN 55022 class B; conducted and radiated emission limits

EN 61000-6-2: Electromagnetic compatibility (EMC) - Generic standards—Immunity for industrial environments;

- EN 61000-4-3: Radiated, radio frequency, electromagnetic field immunity test
- EN 61000-4-6: Immunity to conducted disturbances induced by radio frequency fields
- EN 61000-4-4: Electrical fast transient/burnt immunity test
- EN 61000-4-5: Surge immunity test
- EN 61000-4-2: Electrostatic discharge immunity test.

EN 60335-1: Low voltage : safety of electrodomestical devices and similar

EN 60335-2-88: Low voltage : safety of electrodomestical devices and similar, concerning humidifiers

EN 60204-1: Safety of machinery—Electrical Equipment of machines—Part 1 : General requirements

Manufacturer's name & address

devatec SAS
87 Rue Feu Saint Eloi
76550 Ambrumesnil - FRANCE

Type of equipment

Steam humidifier

Model name & series

ELECTROVAP RTH-LC

Year of manufacturing

2007

We the undersigned, hereby declare that the equipment specified above complies with the above-mentioned Directive(s) and Standard(s).

Name : FRAMBOT Jean-François
Position : General Manager
Date : 05.06.2008
Signature:

IMPORTANT

Please read, heed and follow the enclosed safety information and the warning labels inside the humidifier before installation or maintenance.

Warnings & safety symbols



Warning : This symbol is used to designate a danger of injury or potential damage to the system.



Caution : High voltages are present inside the humidifier. All works concerned with the electrical installation must be carried out by skilled and qualified personnel.



Caution : Danger of scalding ! The ElectroVap RTH generates steam during operation and therefore surfaces and pipe-work become very hot. Ensure that equipment not sustaining high temperatures be kept away.



Warning : the end user should ensure that the equipment be disposed of according to the local prevailing regulations.

Delivery and storage

Any loss or damage during delivery should be reported to carrier by registered letter within 3 working days and be advised to **devatec** or to authorized dealer.

It is recommended that the ElectroVap RTH-LC humidifier be kept in its transit packaging for as long as possible prior to maintenance. If the humidifier is to be put into storage prior to installation, it must be stored under cover and protected from physical damage, dust, frost, rain and humidity. More than 6 months storage is not recommended.



ELECTROVAP RTH-LC

Safety information

IMPORTANT

This section should be read carefully to ensure safe and correct installation of your humidifier.

GENERAL

This manual contains all details necessary for the planning and installation of the ElectroVap RTH humidifier. In addition commissioning and maintenance details are included.

The manual is intended for use by engineers and properly trained technical personnel. Maintenance, servicing or repair work must only be carried out by suitable skilled and qualified personnel, the customer must be responsible for ensuring their suitability.

Any risks or hazards, especially when working from ladders or towers should be identified by a skilled and Health and Safety representative and effective control measure put in place.

No liability will attach to the Distributor if any damage, injury or accident is attributable to inattentive, inappropriate, negligent or incorrect operation of the machinery whether or not caused deliberately. Always isolate all electrical and water supplies before commencing any maintenance.

Every effort has been made to ensure details contained in this manual are correct, however, in view of the wide range of conditions experienced in air handling systems, the information provided should only be used as a guide. Please contact your Agent if any doubt.

Correct use

ElectroVap RTH-LC humidifiers are ONLY intended for use with air handling systems or direct air humidification. ANY OTHER APPLICATION IS NOT CONSIDERED USE FOR THE INTENDED PURPOSE. THE MANUFACTURER CANNOT BE MADE LIABLE FOR ANY DAMAGE RESULTING FROM INCORRECT USE.

Water

ElectroVap RTH humidifiers are designed to be used with mains, demineralized R/O with a minimum conductivity of 30 μ s or softened water. On no account attempt to introduce any other fluid or chemical into the system. Water supply should not exceed 6.0 bar and installation should comply with local regulations.

Electricity

All work concerned with electrical installation MUST only be performed by skilled and qualified technical personnel (eg electrician or technicians with appropriate training). The customer MUST be responsible for ensuring their suitability.

It is the duty of the installer to ensure that suitable sized cables and MCB protection is provided. Please observe the local regulations concerning the provision of electrical installations.

Warranty

A two year warranty term—cost and labor—is applicable to the parts of the ElectroVap RTH to the exception of the consumable parts (valves, cylinders or parts of cylinders) provided our recommendations of use & maintenance have been adhered to. Failure to specify and fit original parts and accessories will invalidate our warranty.

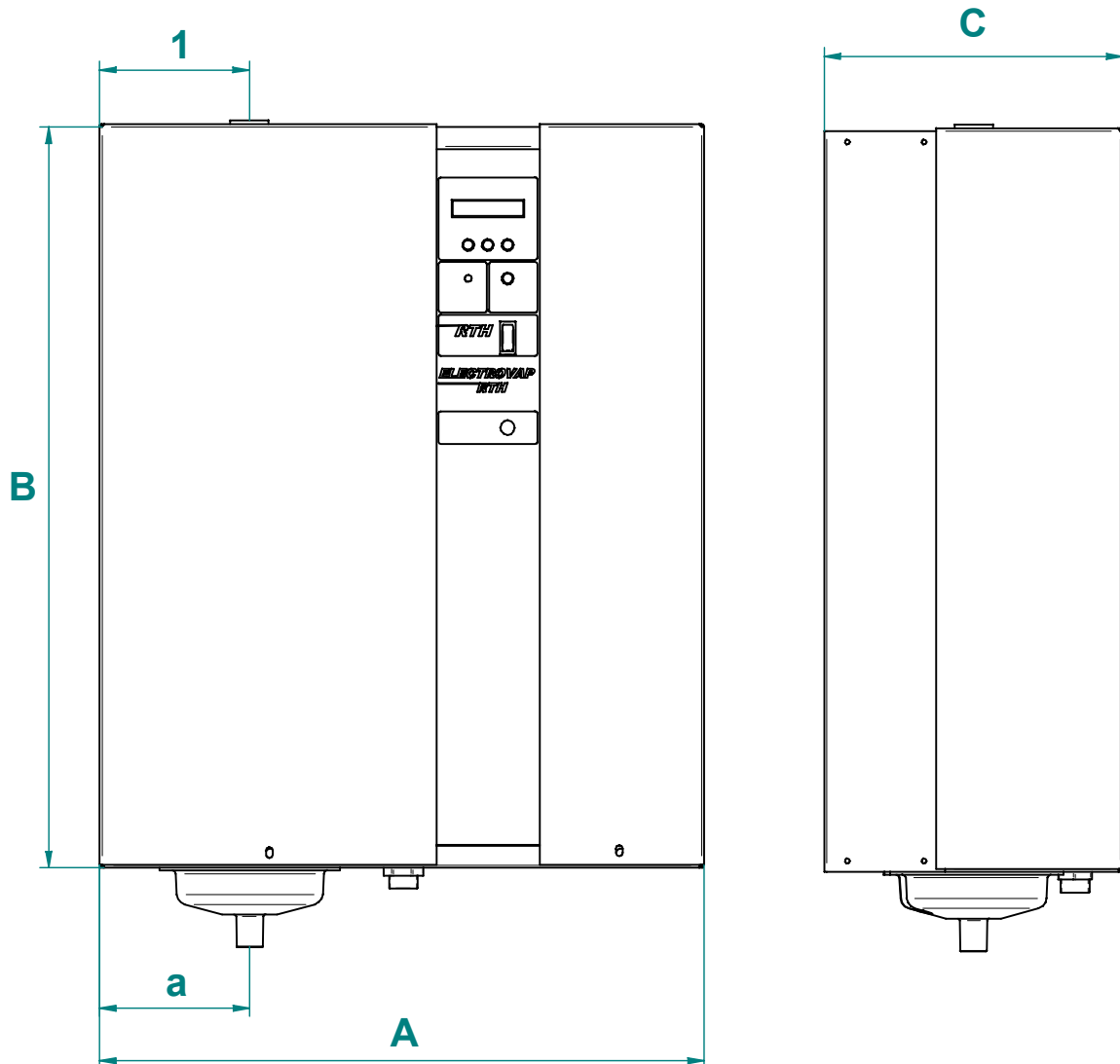
NOTE

The manufacturer's policy is one of continuous research and development. He therefore reserves the right to amend without notice the specifications given in this document.

ELECTROVAP RTH-LC

Dimensions

RTH 3 to 15



	Overall dimensions (mm)	Steam outlet (mm)		Drain outlet (mm)		Weight empty (kg)	In operation (kg)
		1	140	a	140		
A	550					25	35
B	680						
C	272						

TAKE CARE :

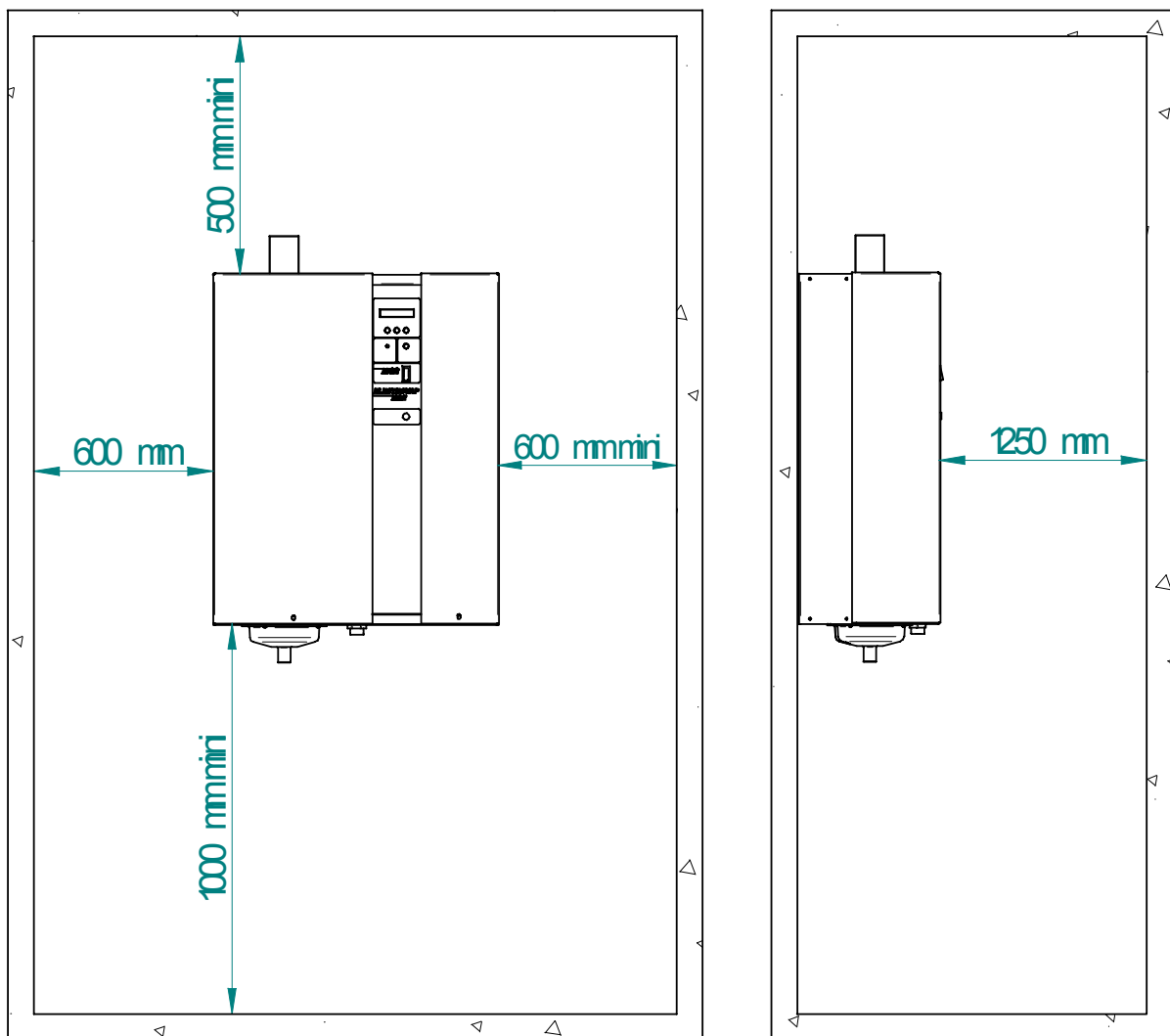
The humidifier should be installed in a room the temperature of which must be between 5°C and 40°C that the humidity level should not exceed 80 %.

The rear part of the RTH-LC becomes hot during operation (about 60°C). Make sure that the surface on which the humidifier is installed can sustain hot temperatures.

The devatec steam humidifiers are designed to be installed on wall. Make sure that the surface the humidifier is hanged on is strong enough.

Install the humidifier at the shortest distance of the steam pipe (s.a. page 10) whenever possible for best performance.

Arrange position of the humidifier on wall to provide free access for easy maintenance (see after installation drawings here under).



ELECTROVAP RTH-LC

Unit wall installation

NOTA BENE:

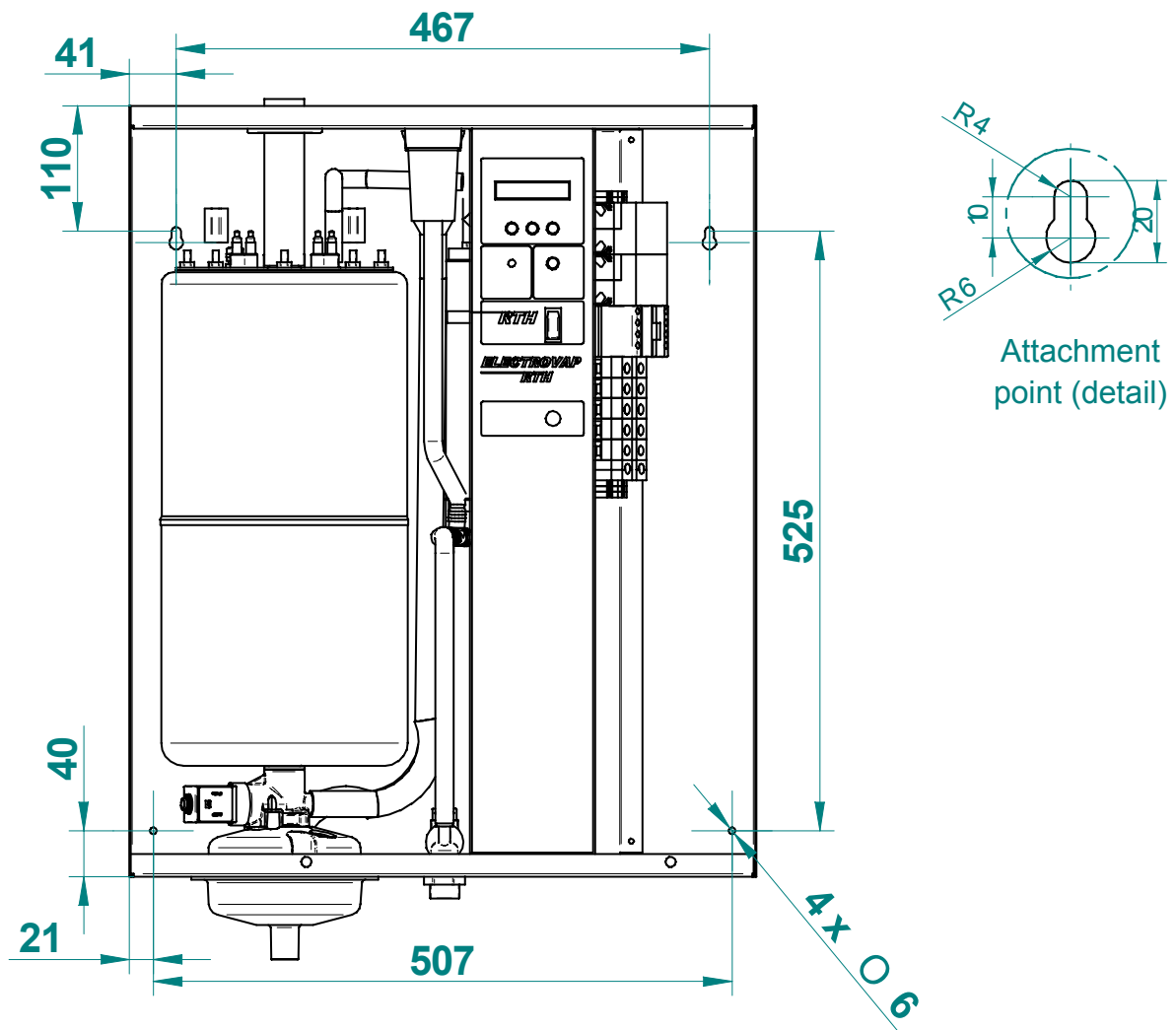
Use attachment equipment appropriate to the support.

Installation procedure:

Mark the 4 mounting holes and drill.

Insert pegs. Screw the upper screws allowing (diam 6mm) allowing about 10 mm for hanging the cabinet.

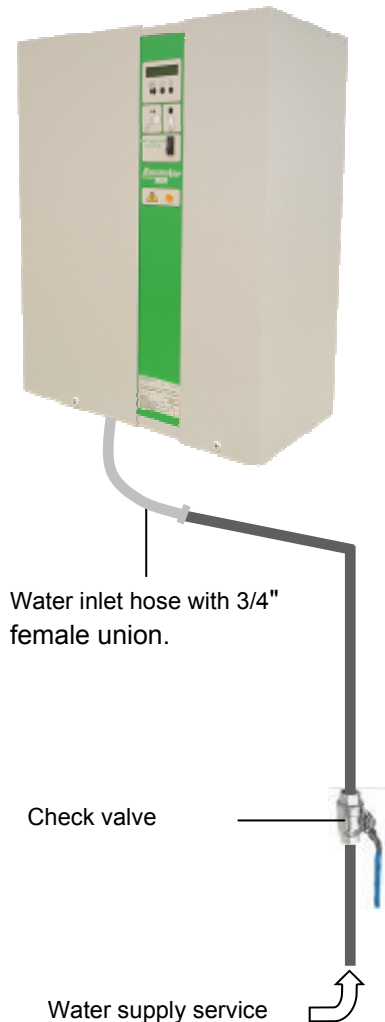
Hang the cabinet and screw the lower screws. Tighten up all the screws for securing the installation while ensuring that the cabinet is level.



ELECTROVAP RTH-LC

Water connection

A fresh mains cold water service should be used to supply the unit. The water pressure should be between 1 & 6 bars & should not exceed 40°C in temperature.



The water supply connection is under the bottom of the unit. The humidifier is delivered with a water inlet hose of 50 cm long with a 3/4" female fitting to the cold water supply. A direct copper connection is **PROHIBITED**.

A check valve should be located on the mains and cold water service connection to the unit.

The inlet valve base has a basket filter (s.a. page 34).

The RTH humidifier uses water to produce steam so leakage may happen causing potential damage. If an installation in false ceiling or above prime rooms (such as museum, exhibition or laboratory rooms) is considered, ensure that the floor below the humidifier is constructed from water-proof materials (with draining facilities) to withstand any water spilling during servicing or if a problem occurs.

Information about the water quality : chloride concentration : < 75mg/l, phosphate concentration : < 5mg/l, chlorine concentration (3 to 6° dA) : < 100mg/l, poor concentration in CO₂, organic elements in poor concentration.

The RTH humidifier can run with the following water qualities :

- Tap or raw water : water TH between 5° and 40° French grade.
- Demineralized water : **30µS minimum** (caution : the demineralized water is corrosive; use appropriate piping material : inox, PVC)
- Softened water (TH 0° not recommended) : the cation exchangers (softeners) do not suit for the water supply as they do not bring down the mineral salt content dissolved in the water, the polyphosphate measuring devices as well.

A water softener consists basically in replacing a calcium ion by a sodium ion the solubility capability of which is about 7 times higher. So a water softener does not affect the quantity of mineral salts contained in the water but alters their nature.

An excess of sodium chloride may generate foam which disturbs greatly the correct running of the humidifier. It is essential that a duplex softener be used.

A small volume of tap water must be added to the softener water to get a **TH value of 10° minimum** and a water analysis is recommended to determine the sodium chloride content.



1. Use preferably hose from our supply

NB : when brand new hoses are installed, a smell of burning may be smelt during the first running of the steam humidifier. This is normal and will eventually dispel.

2. Number of steam outlets :

RTH-LC 3 to 15 = 1 x Ø 25 mm

3. The RTH-LC humidifier can be used with pressure ducts (P) having the following characteristics :

- If P is inferior to 150 mm CE (Water column) i.e. 1470 Pa.
- If P is between 150 mm CE and 300 mm CE (2941 Pa.) , our optional filling cup platform must be used.



4. Please adhere to the recommendations given underneath for the installation of the steam hose according to one of the shown examples, the most suited to your installation. A set of hose clamps is supplied for ensuring a correct installation.

The humidifier should be located within 3 m. of the steam distribution pipe. If the distance is superior to 3 m. insulated steel or copper pipe of a slightly larger diameter must be used.

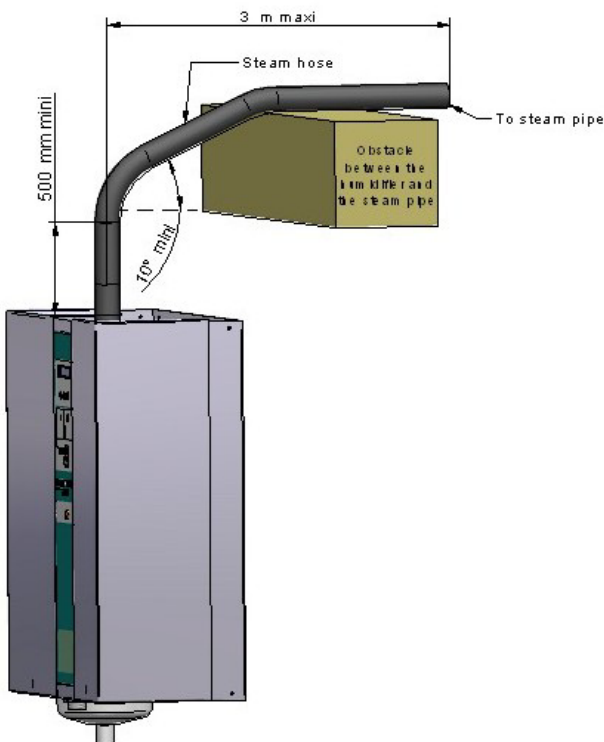
TAKE CARE : The steam hose must be kept as tight as possible. If it happens to be pinched or kinked, this can cause the heating elements to overheat and to be destroyed due to an incorrect detection of a too low water level inside the cylinder.

Radius of bend for steam hose :

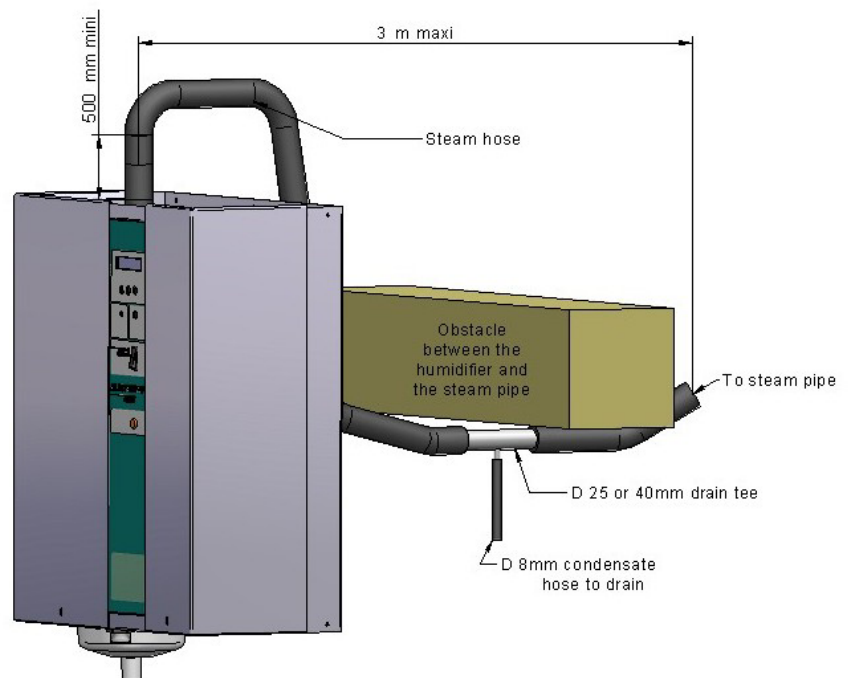


- Ø 25mm steam hose = 250mm minimal radius

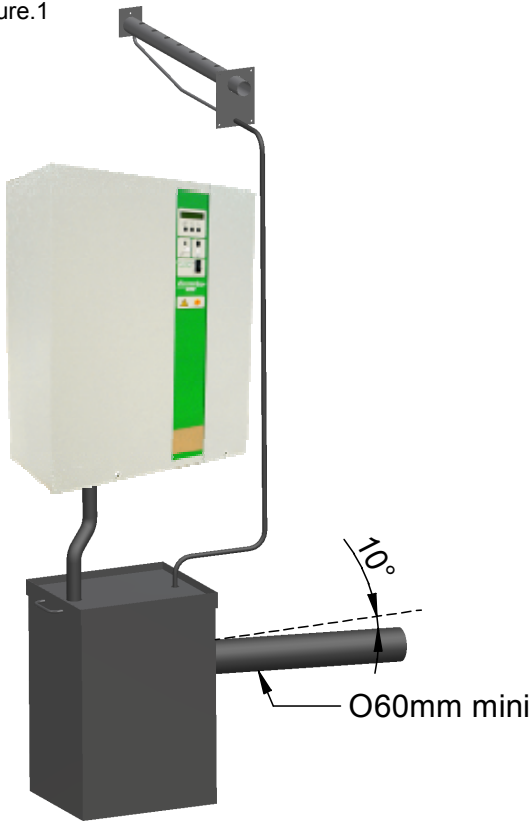
Example a



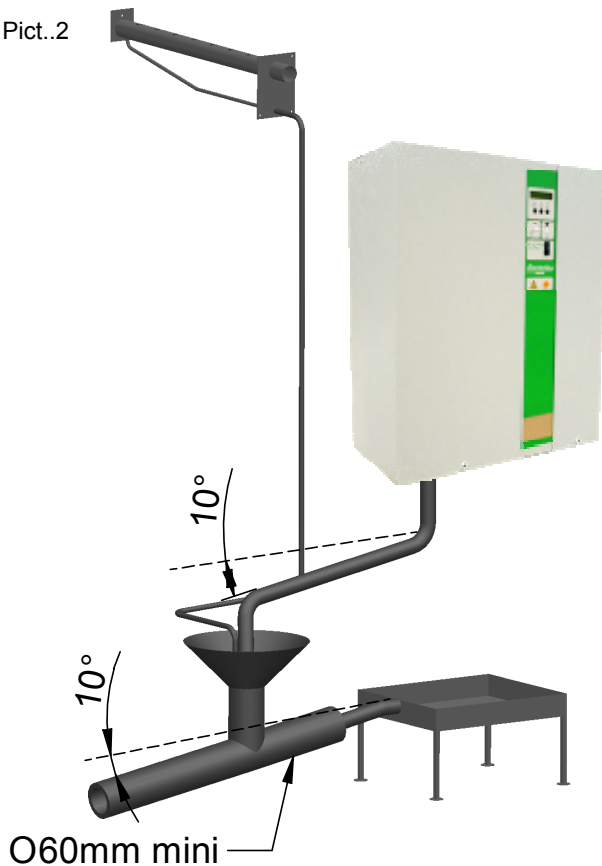
Example b



Pciture.1



Pict..2



The following drawings show the water draining connections that should be made.

1. The **devatec** supplied steam hose should be used :

RTH-LC 3 to 15 : 1 m Ø 25 mm hose with 1 hose clamp (supplied).

This hose is designed to be connected to the draining system. Regular replacement is recommended.

2. If rigid piping is used, it must be heat (100°C) and pressure resistant PVC material and have a 100 mm wide diameter.



3. The discharge hose must be free from any obstacle. It is recommended that each humidifier has its own drain pipe and tank arrangement in case a number of humidifiers is installed.

4. Use water tanks with a lid that has water collecting facilities (option on request) (s.a. drawing 1).

5. A funnel can also be used (s.a. pict. 2), but it should be offset from the underside of the unit to prevent any steam and/or condensation from getting into the cabinet. The installation of a siphon (as per the draining hose) is recommended and arrangements for holding water spilling should also be made.

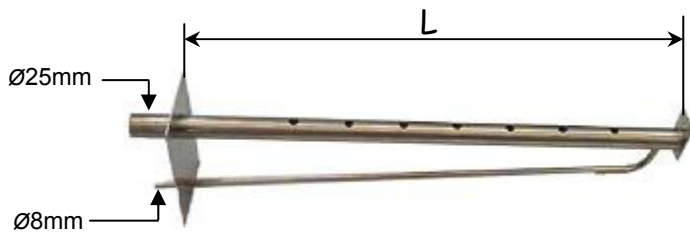
6. **CAUTION** : keep a minimum pitch of 10° for both the draining & overflow hoses of the humidifier and for general drain pipe (s.a. pictures 1 and 2).



ELECTROVAP RTH-LC

Steam distribution

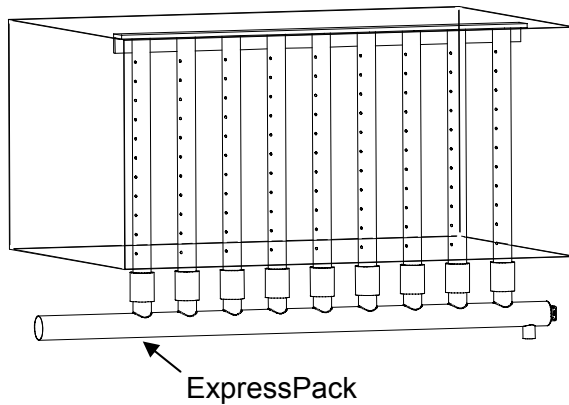
Steam distribution pipe



The steam from the boiler enters the duct or an air handling unit via a steam distribution pipe.

In order to obtain the optimum performance of the humidifier, select the longest pipe.

ExpressPack



ExpressPack

The Armstrong ExpressPack is a bespoke steam humidification system made to suit your configuration and ready to install in a ventilation duct.

It permits to have vapor trails (absorbing distances) as short as 600 mm. For further reference, please contact **devatec** or their authorized agent.

Steam distribution selection table

Steam distribution pipe for RTH-LC 3 to 15	L
	mm
D25 -L290	290
D25-L590	590
D25-L790	790
D25-L1000	1000
D25-L1250	1250
D25-L1500	1500

Evaporation distance or vapor trail « D »

A certain length is required so that the steam coming out of the steam distribution pipe be absorbed by the air. All along this length, described as the evaporation distance, the steam can still be seen in the airflow as a mist which can condensate in water against any obstacle if placed within. To prevent condensation, this evaporation distance should be calculated before positioning the steam distribution pipe.

How to calculate the evaporation distance « D » (FAST METHOD)

In order to determine the evaporation distance, the attached calculation table can be used :

% HR2 outlet air	% RH1 inlet air							
	5	10	20	30	40	50	60	70
	Minimum humidification distance « D » in m.							
40	0,9	0,8	0,7	0,5	-	-	-	-
50	1,1	1	0,9	0,8	0,5	-	-	-
60	1,4	1,3	1,2	1	0,8	0,5	-	-
70	1,8	1,7	1,5	1,4	1,2	1	0,7	-
80	2,3	2,2	2,1	1,9	1,7	1,5	1,2	0,8
90	3,5	3,4	3,2	2,9	2,7	2,4	2,1	1,7

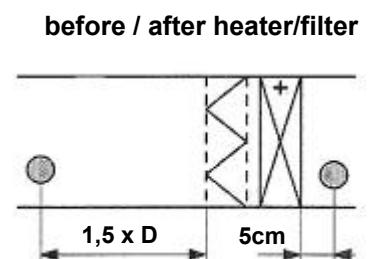
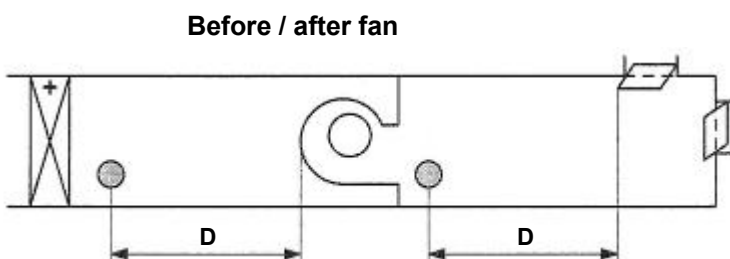
Nota bene : this calculation table is to be used for temperatures between 10°C and 25°C.

HR1 = relative humidity of air before humidification in %.

HR2 = relative humidity of air after humidification in %.

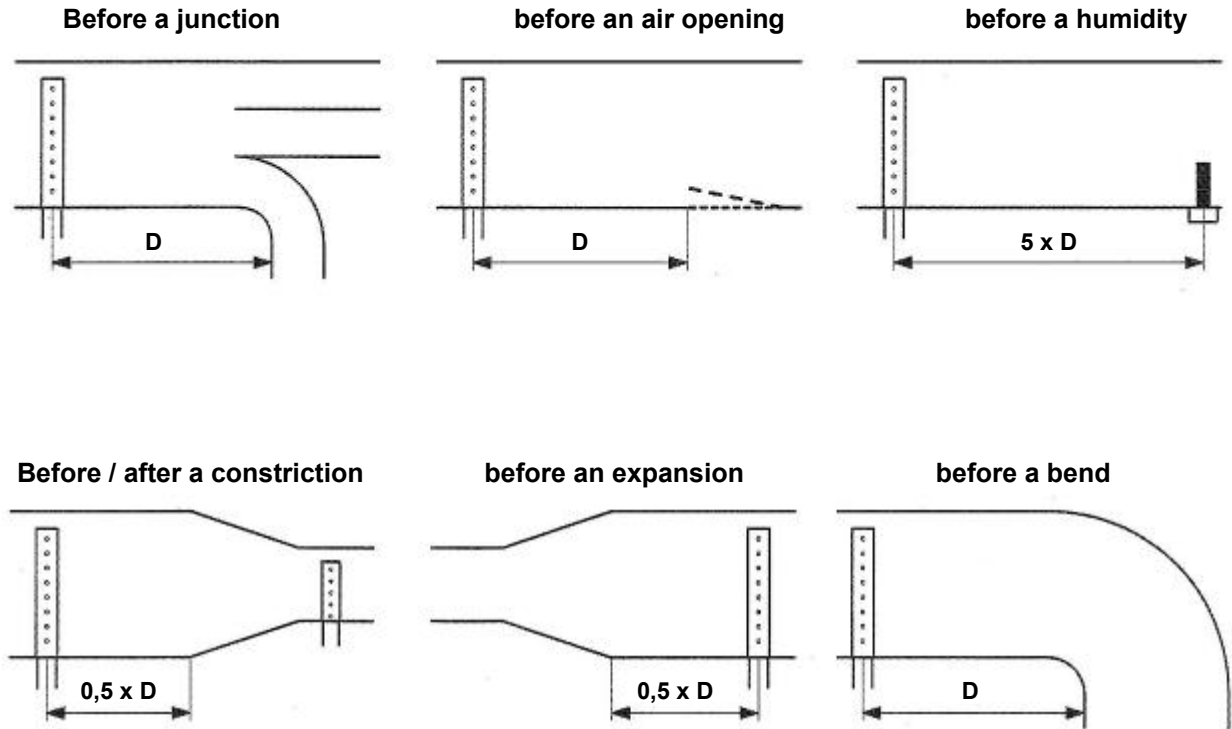
Minimal humidification distance

The steam distribution pipes must be positioned after the minimum humidification distance calculated with the help of the above table.



2,5 x D before thin particule filter

(continued)



A high humidity limit humidistat must be installed in the duct to stop the humidifier in case the level of humidity exceeds the preset value.



In case the recommended distances cannot be met, please contact **devatec** or their authorized agent for an alternative solution.



If accurate values cannot be reached, a distance of 2 m. should be considered as a minimum distance between pipes & obstruction and 3 / 4 m. before sensor or humidistat.




Please meet the following dimensions and spaces according to your configuration. For further information, please contact **devatec** or their authorized agent.

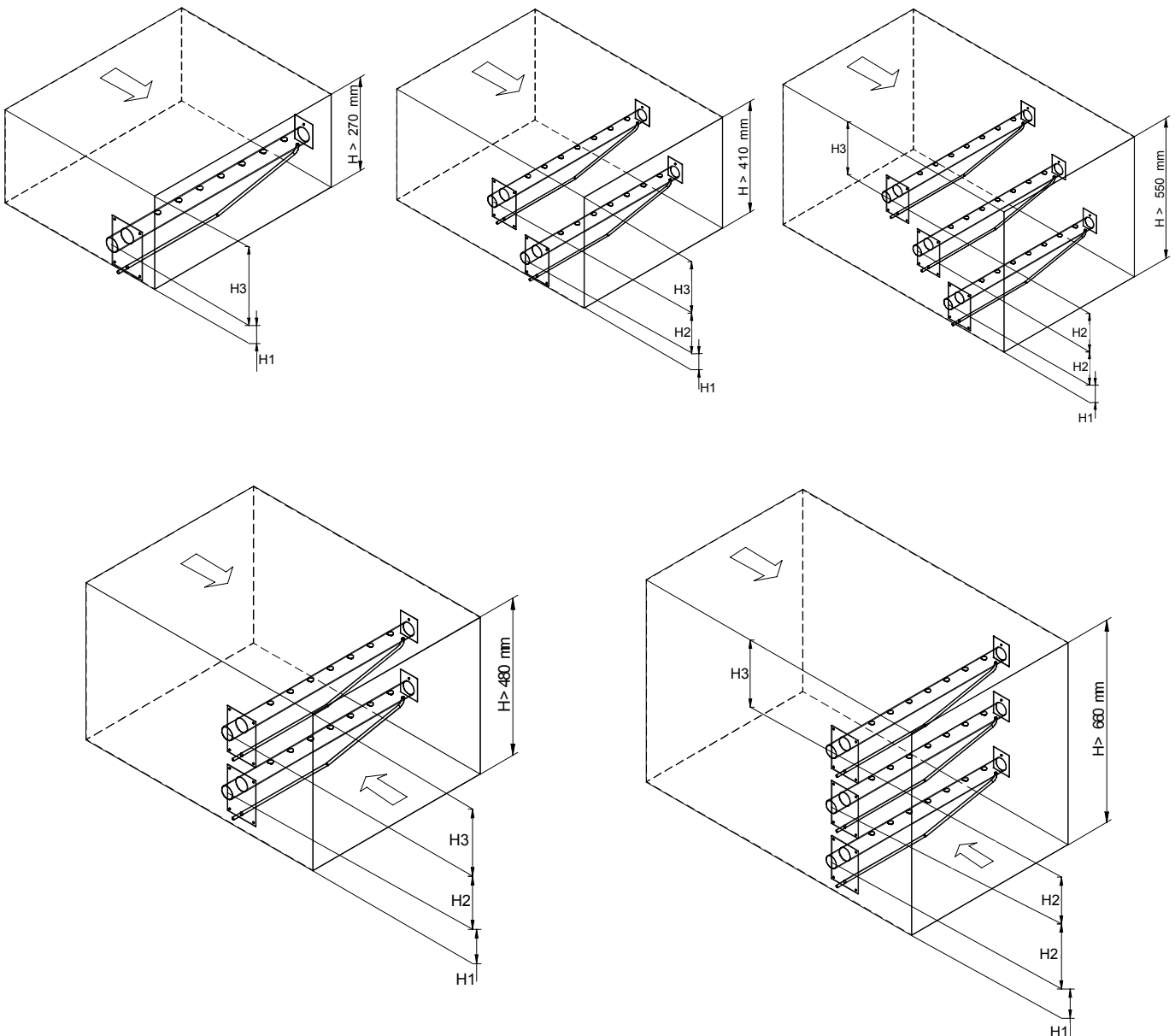
H1 = 110mm = Minimum height between the duct floor and the axle of the steam pipe.

H2 = 140mm = Minimum distance between two pipes.

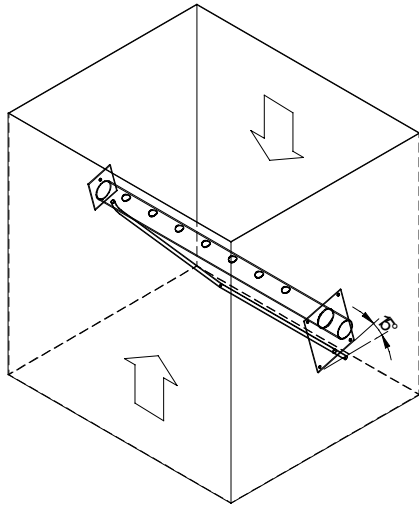
H3 = 160mm = Minimum height between the duct top and the axle of the steam pipe.

The H3 distance can be 80 mm at the shortest in case the steam pipe is installed at an angle of 30°.

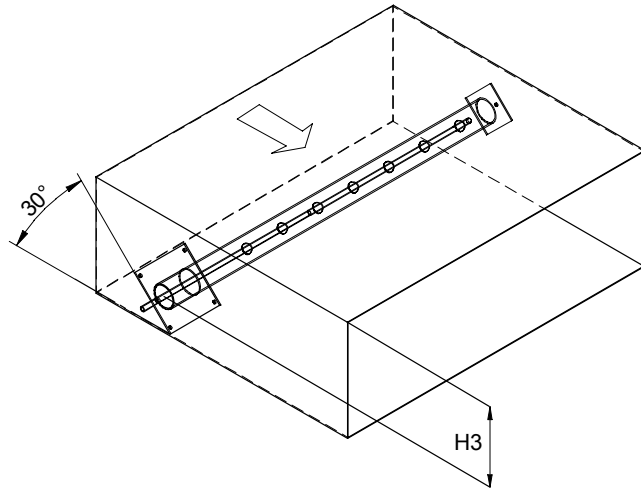
 The arrow shows the direction of the air flow.



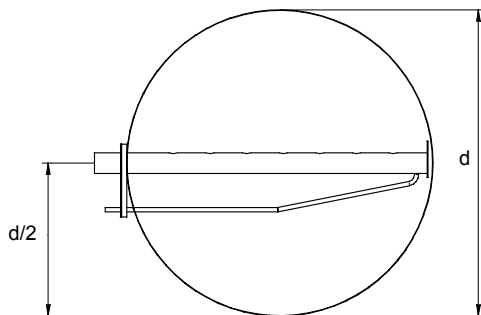
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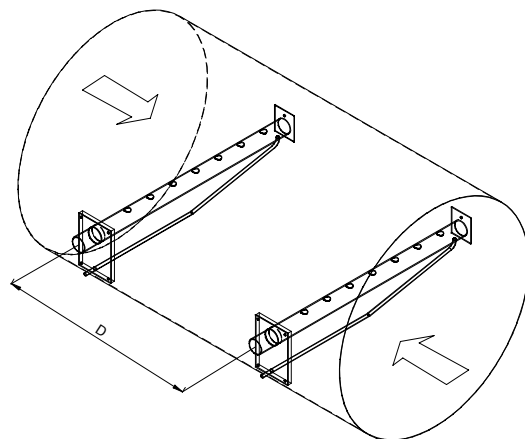
In vertical ducts where the air flow is upward or downward, the steam distribution pipe(s) must be tilted by 15° sideways.



In duct with limited height, the distribution pipe(s) can be tilted by 30 or 45° to get the 80 mm minimum height.



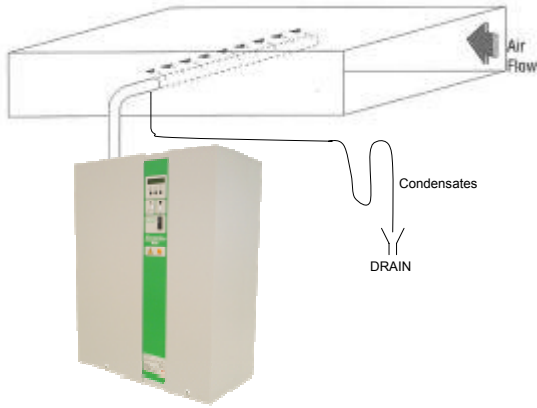
d = Duct diameter



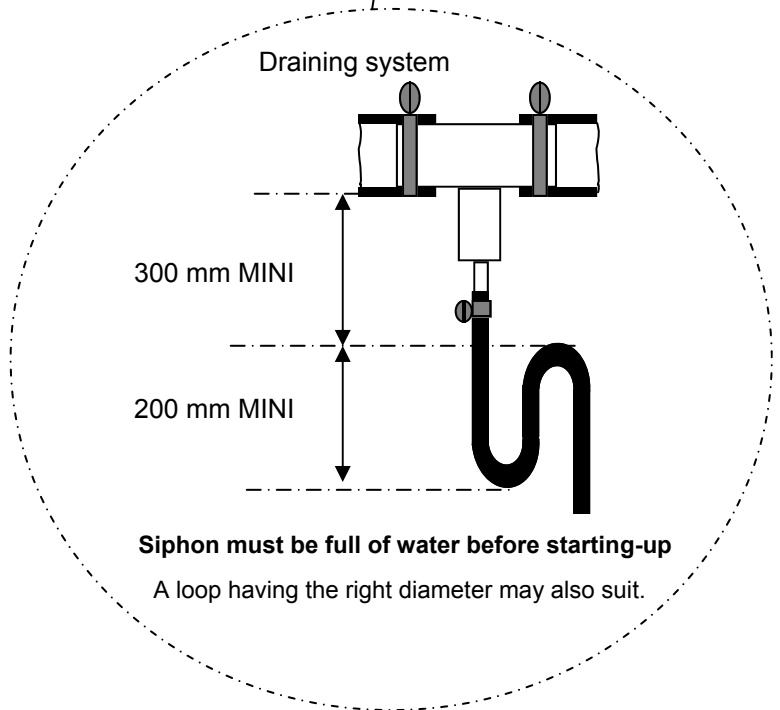
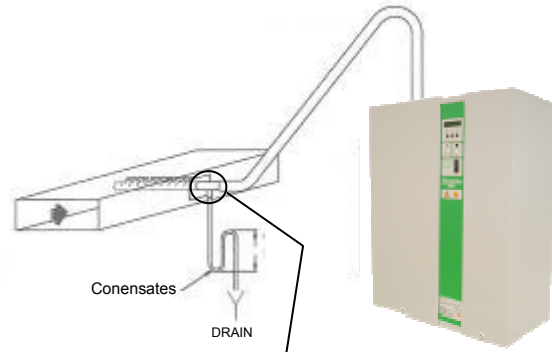
D = Humidification distance

(continued)

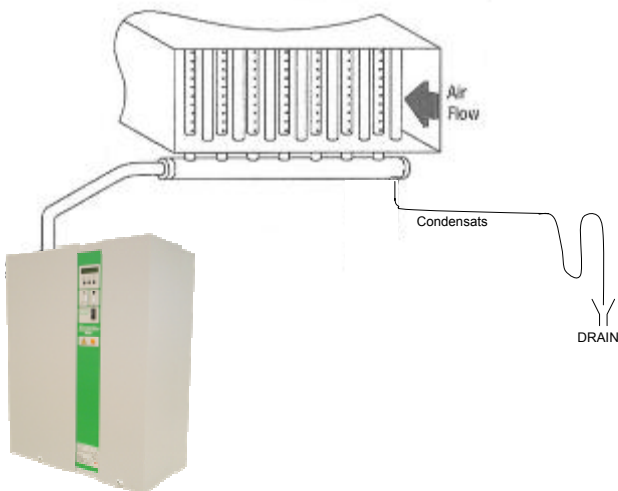
Steam pipe above humidifier RTH-LC 3 to 15



Steam pipe under humidifier RTH-LC 3 to 15



ExpressPack duct insertion RTH-LC 3 to 15

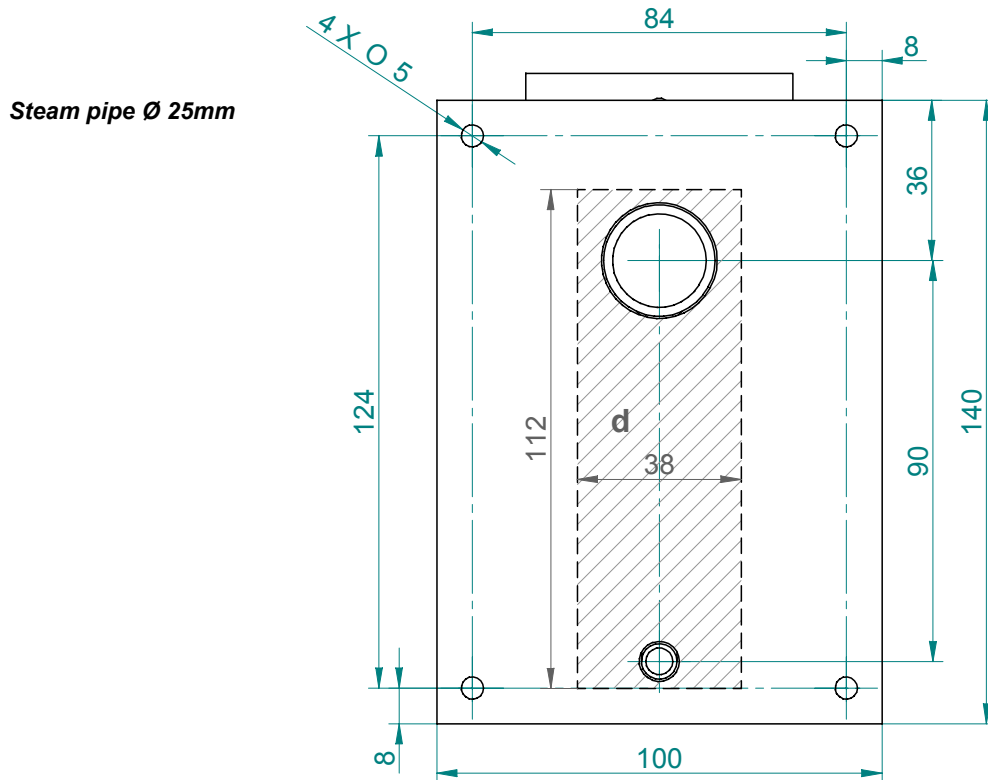


For ensuring the best steam distribution possible, we would recommend to install the steam pipes as per the two methods described underneath.

How to install in a duct

Your steam pipes must be screwed onto the ventilation duct by the fixing plate with a set of 4 bolts and nuts of $\varnothing 5$ mm. For ensuring airtightness, apply a large silicon film all around the duct installation plate.

The length of the bolts will be according to the thickness of the ventilation duct.

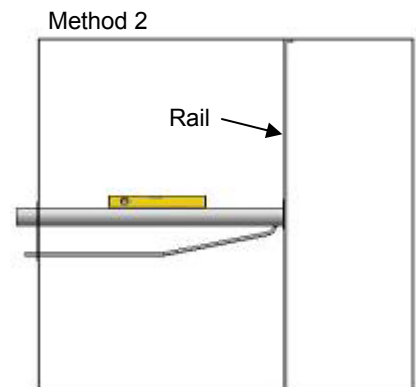
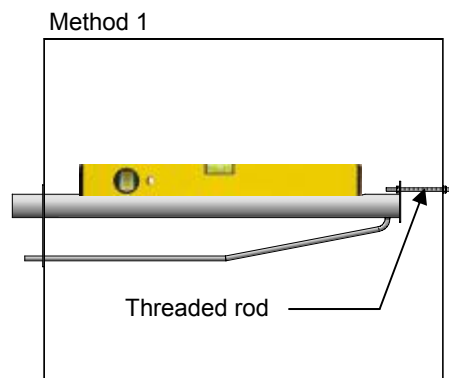
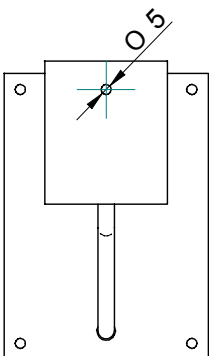


How to attach the pipe (inside the duct)

The end of the steam pipe should be attached to the duct with a threaded rod of $\varnothing 5$ mm going from the dedicated hole of the fixing plate to the outside of the duct and attached by a couple of nuts (method 1). A rail attached to the inner side of the duct can also be used - a 5mm bolt and nut are used to settle the pipe on the rail (method 2).

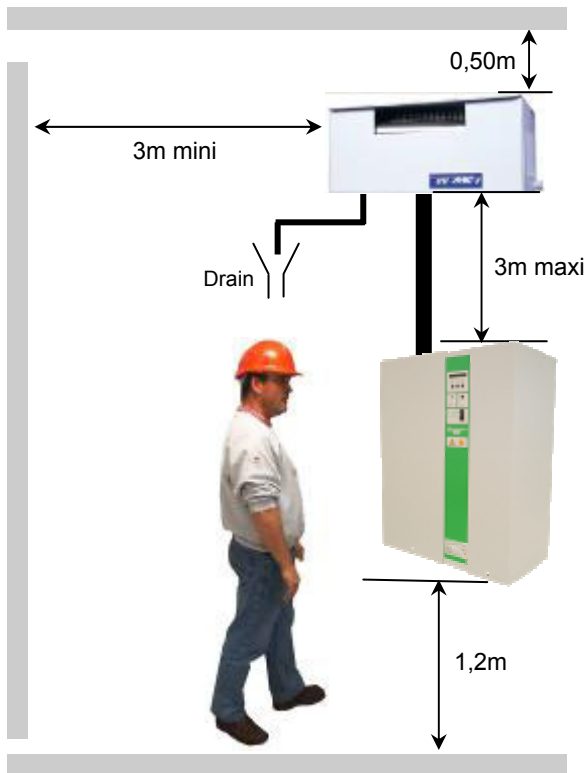


The steam pipe must be at level with the duct.




ELECTROVAP RTH-LC

Room ventilation packs



Two ventilation packs permit the use of the humidifier in direct in-space applications where there is no ductworks.

- Only the CV2 ventilation pack can be set on the top of the humidifier. The distance between the humidifier and the ventilation pack should not exceed 3 m. 
- The steam connection between the humidifier and the humidification pack is ensured by the steam hose of Ø25mm.
- The electrical connection of the ventilation packs to the humidifier is via terminal block 3 & 4 on the DIN rail.
- Allow a 3 m. distance ahead to the ventilation pack for a free diffusion of steam.

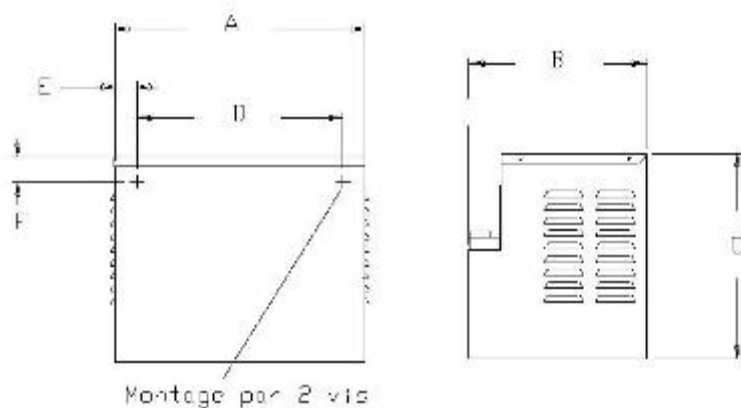
Overall dimensions of room ventilation packs



CVMC1



CV2



	A	B	C	D	E	F	Weight Kg	dB	Kg/h maxi output	m3/h	Compatible with
CVMC1	400mm	195mm	165mm	330mm	35mm	35mm	4,6	35	10	150	RTH 3 to 10
CV2	520mm	260mm	350mm	360mm	80mm	35mm	12	38	20	300	RTH 15



Recommendations:



All works concerned with the electrical installation must be carried out by skilled and qualified personnel (eg electrician with appropriate training). The customer is responsible for ensuring their suitability. Please observe local regulations concerning the provision of electrical installations.



Check all electrical terminal screws at commissioning, after 50 hours operation and at every service thereafter.



Take care : the RTH-LC electronic components are very sensitive to electrostatic shocks. Appropriate steps must be taken before any operation.

RTH-LC steam humidifier in 1 x 230V - 50/60Hz

RTH	Steam production (kg/h)	Voltage (V)	Nb of phase(s)	Amperage (A)	Power (KW)	Nb of boiler(s)	Nb of heating element(s)	Power of heating element (KW)
3	2,5	230	1	1,9	8,3	1	1	1,9 (230V)
5	6	230	1	4	19	1	1	4,3 (230V)

RTH-LC steam humidifier in 3 x 400V - 50/60Hz

RTH	Steam production (kg/h)	Voltage (V)	Nb of phase(s)	Amperage (A)	Power (KW)	Nb of boiler(s)	Nb of heating element(s)	Power of heating element (KW)
5/3	5	400	3	4	6	1	3	1,9 (277V)
7	8	400	3	6	8	1	3	1,9 (230V)
10	12	400	3	9	13	1	3	4,3 (277V)
15	17	400	3	13	19	1	3	4,3 (230V)



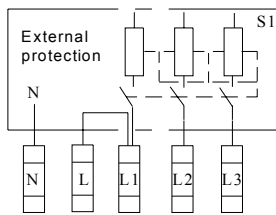
Beware ! Before connecting power, make sure that the electrical installation has been made according to the above-mentioned values.



External protection

In the electrical installation, an all pole switch with a minimum contact width of 3 mm must be provided

A) 3 phases + neutral (3 x 400 V + N)

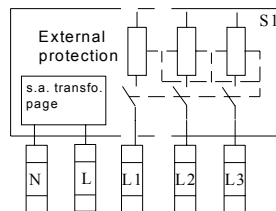


S1: triphase switch with automatic opening by striker fuses

Compulsory protection on three phases and command circuits

B) 3 phases without neutral (3 x 400 V)

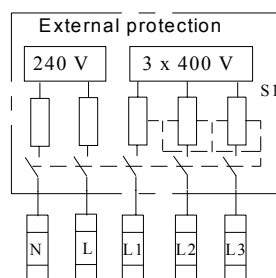
A transformer must be installed in the humidifier (s.a. techn. manual)



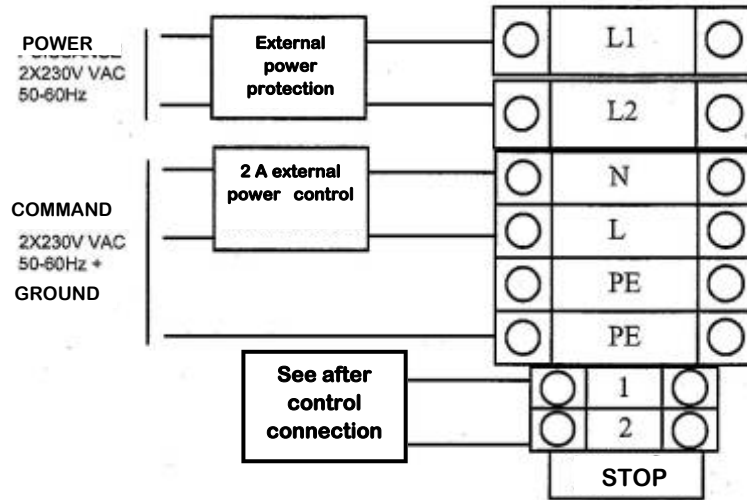
C) 3 phases without neutral (3 x 400 V + 2 x 240 V)

The power and the control are supplied separately.

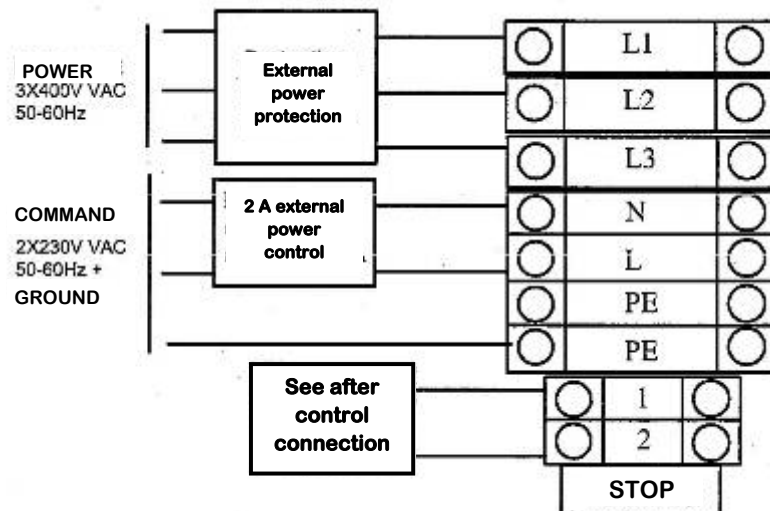
The command circuit must be shut in case a phase is missing



RTH-LC 3 to 5 in 230 V - 1 phase



RTH-LC 5/3 to 15 in 3 x 400V





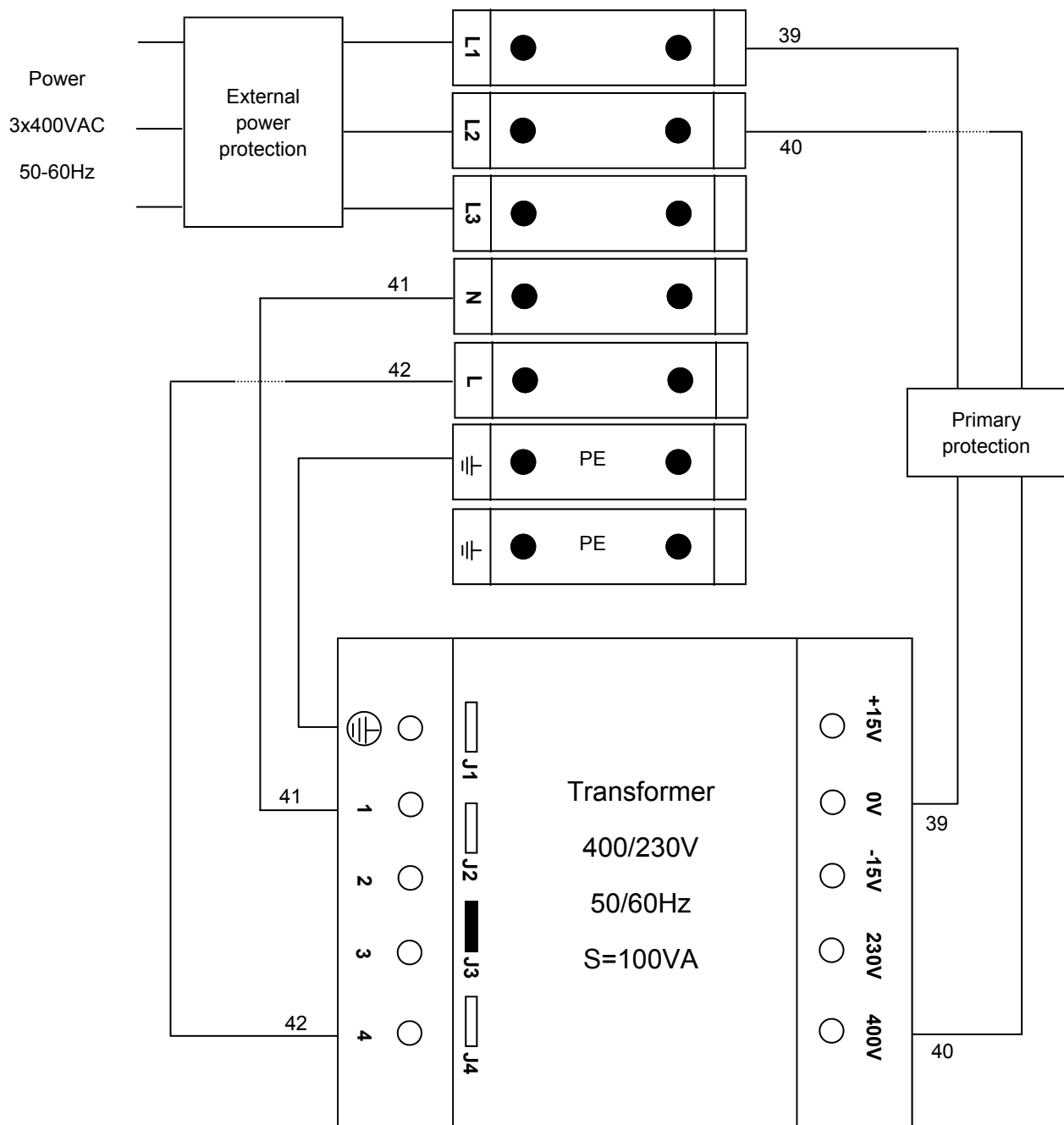
ELECTROVAP RTH-LC

Wiring connection

(continued)

Humidifier without neutral fitted with a 400/230V transformer

The RTH-LC 5/3 to 15 humidifiers are electrically supplied in 3x400v + G + N. In case a neutral line is not available, this can however be easily substituted by the use of our optional transformer preventing the installation of a specific neutral line.





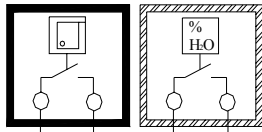
ELECTROVAP RTH-LC

Control connection

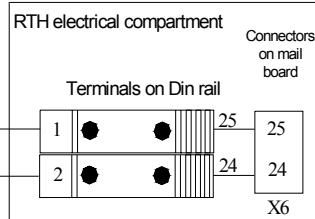


The wiring of the optional equipment described under must be made with 0.75 mm² flexible cable. This control signal wire should not go along with a power cable.

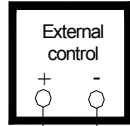
RTH ON / OFF



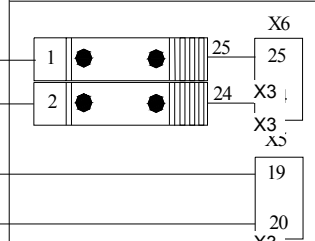
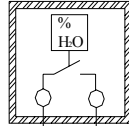
CONNECTION FOR HUMIDISTAT OF CONTROL ON/OFF, HIGH LEVEL SAFETY DEVICE AND BLOWER PACK, OR TO BE JUMPED



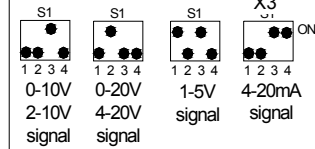
RTH PROP CONTROL



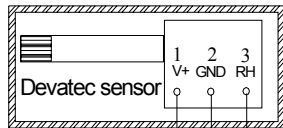
CONNECTION TO AN HUMIDISTAT OR/AND AIR FLOW SYSTEM OR TO BE JUMPED



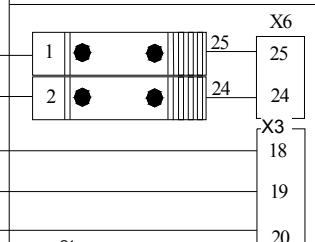
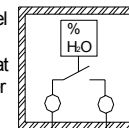
Dip-switch S1



RTH with humidity sensor

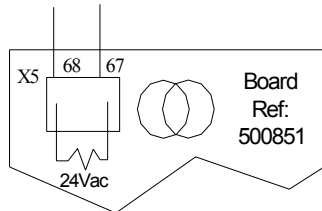


High level safety humidistat or jumper

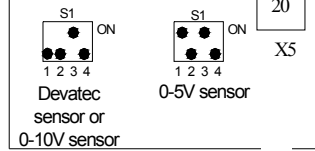


Alim +15Vdc

A 24Vac (2VA) supply is available



Dip-switch S1



RTH external wiring



Optional equipment

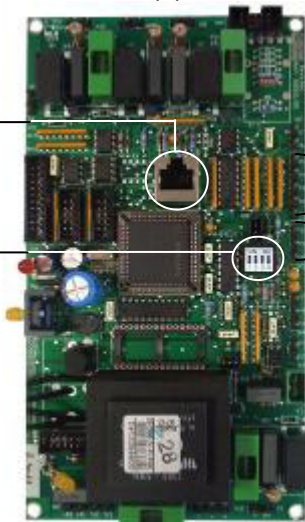


Equipment not supplied

RJ45 connector : enables a computer connection

Dip Switch S1:

Enables to select the control signal (see above configuration drawings).



Connector X6: 21-22-23-24-25

Connector X5: 18-19-20

Main board Ref: 500101/05

Pictures for illustrative purposes



ALL WORKS CONCERNED WITH THE ELECTRICAL INSTALLATION MUST BE CARRIED OUT BY SKILLED AND QUALIFIED PERSONNEL.

(continued)

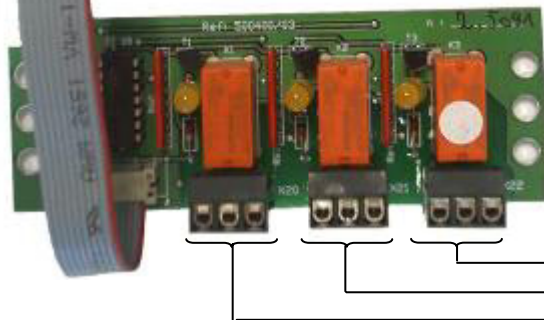


The wiring of the optional equipment described under must be made with 0.75 mm² flexible cable.

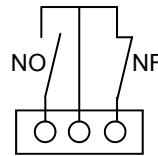
REMOTE INFORMATION BOARD (OPTION)



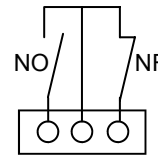
Platine Réf: 500400/03



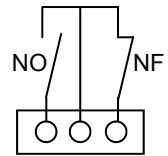
Contact can be modified in NO or NF by wiring as per the following schemes (ex: wiring on 30 & 31 = NO contact).



30 31 32
X20



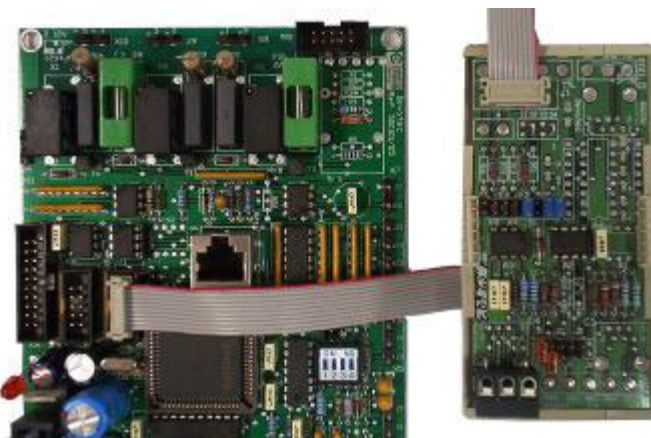
33 34 35
X21



36 37 38
X22

- X22 connector (36-37-38): Remote steam production dry contact.
- X21 connector (33-34-35): Remote general fault dry contact
- X20 connector (30-31-32): Remote cylinder maintenance dry contact

RS485 OR RS422 OR RS232 CIRCUIT BOARD (OPTION)



Main board Ref: 500800/01

SPECIFICATIONS

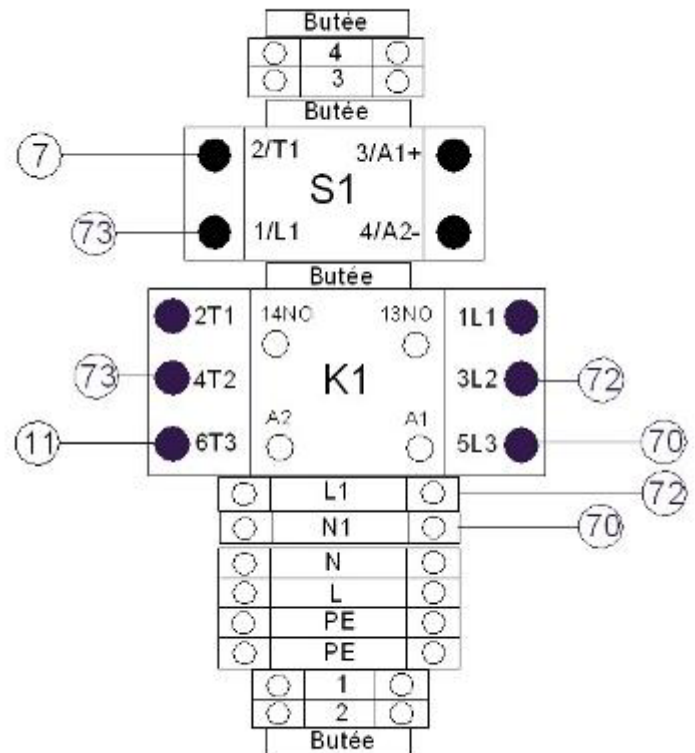
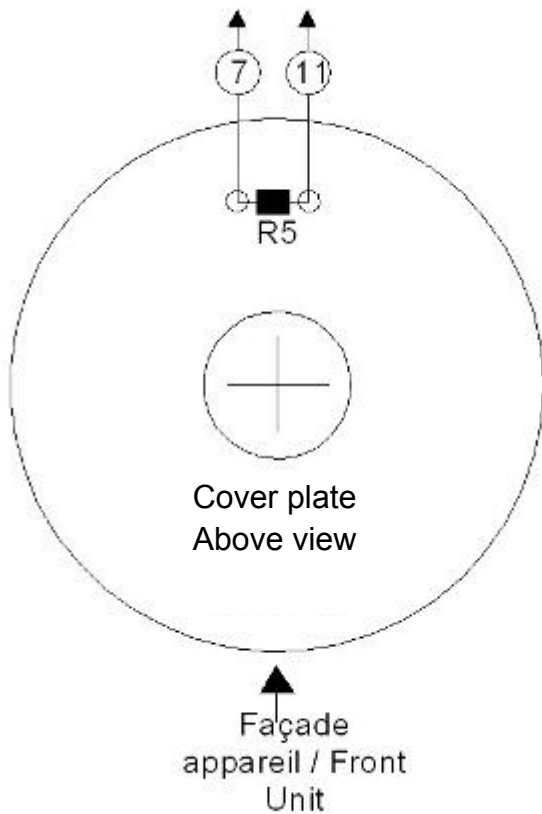
- RS485 : 2 wires half duplex (+GND) Maximum length : 1200 m.
- RS422 : 4 wires half duplex (+GND) On demand—Max length 1200
- RS232 : 2 wires half duplex (+GND) On demand—Max length : 20 m.
- Bias : 620 Ohms pull-up and pull-down (jumper selectable)
- Termination : 120 Ohm (jumper selectable)
- Protocol : JBUS or MODBUS (asynchronous of 8 bit data, no parity bit, 1 bit stop, CRC)
- Speed data : 1200, 2400, 4800, 9600 bauds
- Mounting : on the DIN rail of the humidifier.

Size : 95 x 50 mm



ALL WORKS CONCERNED WITH THE ELECTRICAL INSTALLATION MUST BE CARRIED OUT BY SKILLED AND QUALIFIED PERSONNEL.

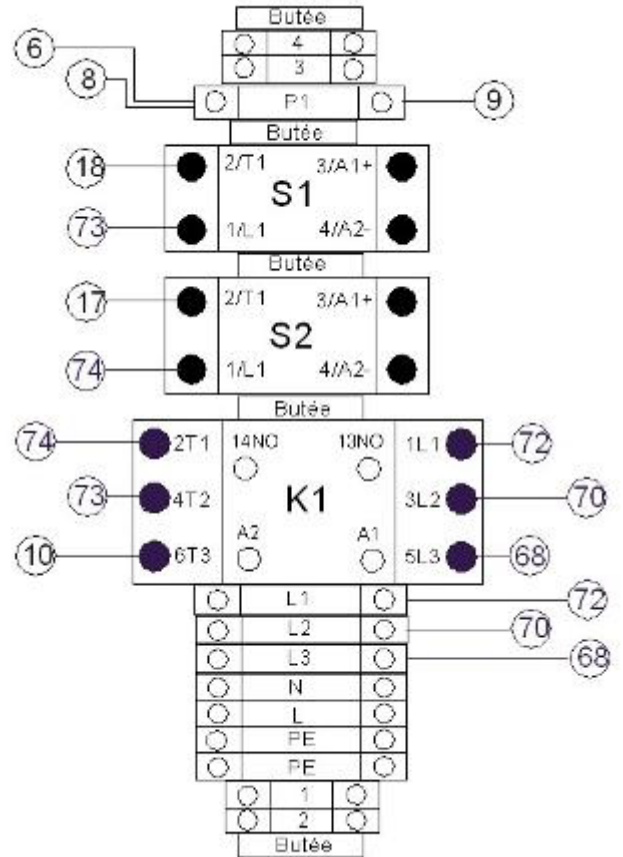
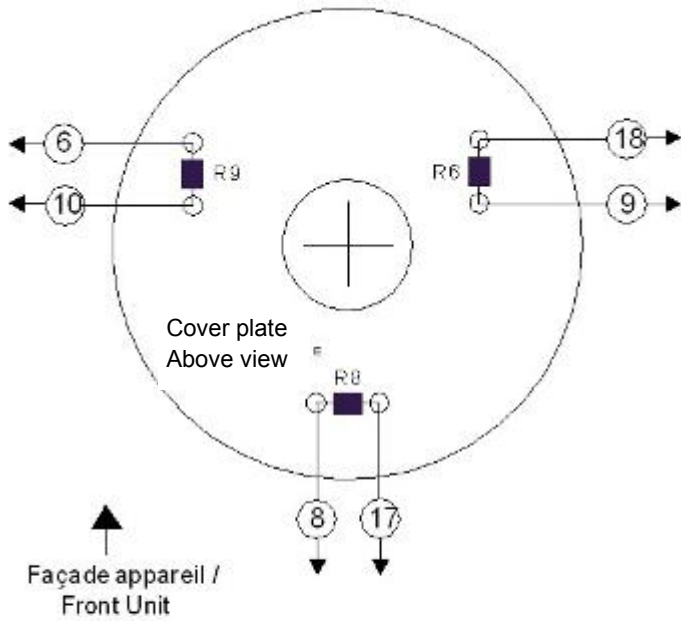
RTH-LC 3 & 5 STEAM HUMIDIFIERS in 1x230V



RTH	R5
3	1,9KW-230V
5	4,3KW-230V



RTH-LC 5/3 to 15 STEAM HUMIDIFIER in 3x400V



RTH	R6	R8	R9
5/3	1,9KW-277V	1,9KW-277V	1,9KW-277V
7	1,9KW-230V	1,9KW-230V	1,9KW-230V
10	4,3KW-277V	4,3KW-277V	4,3KW-277V
15	4,3KW-230V	4,3KW-230V	4,3KW-230V








Before putting your humidifier in operation, please make sure that your installation be in conformity with the manufacturer's technical specifications.

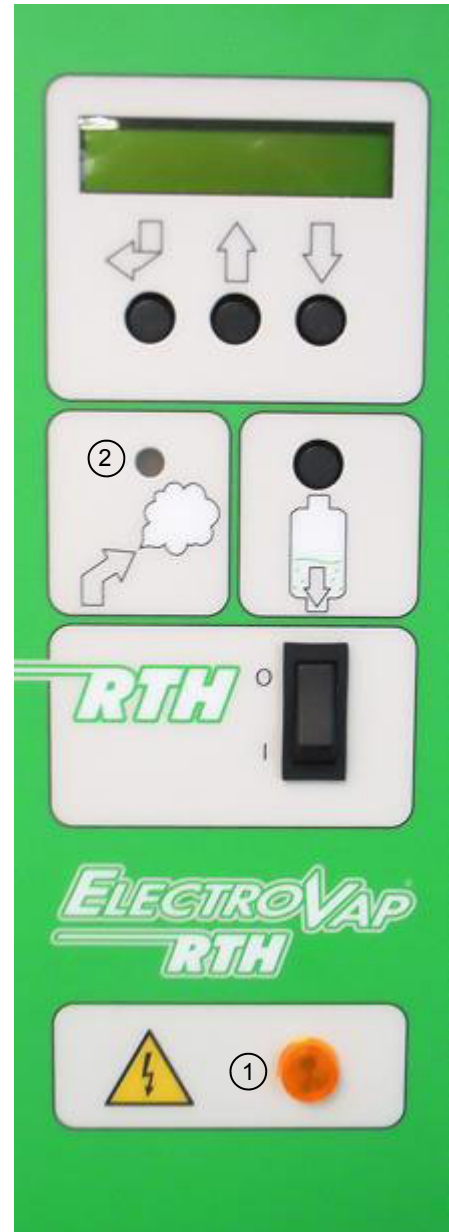
- Open the water valve of the main water line.
- Switch on the main power supply contactors (voltage and command).
- The power-on light ① must be illuminated.
- Switch on I the I/O (on/off) rocker switch.
- The display will default to show the rate of steam produced. You are in the user information menu.

DISPLAY OPERATION :

1 Pressing the select button  repeatedly will rotate between the three main pages.

2 Enter the derised menu by pressing the up  or down  button.

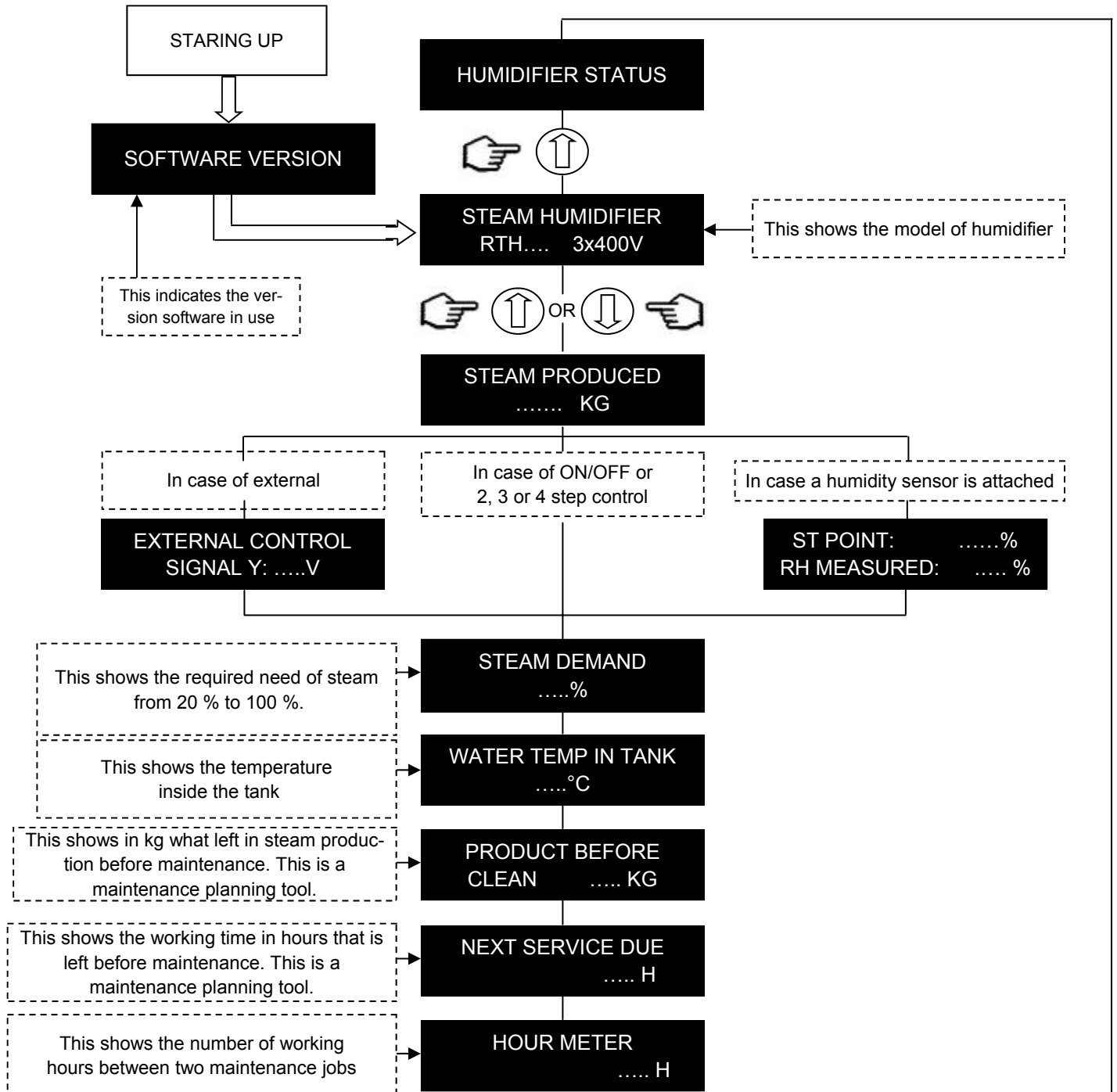
- As soon as the humidifier is prompted by the regulator, the humidity ② sensor or the humidistat, the contactor of the DIN rail turns on and the power heating is on (the steam production LED is illuminated)
- 2 minutes after the humidifier is switched on, the inlet valve opens and the cylinder/s is/are flushed with water. The heating elements then heat the water up and after about 10 minutes (the heating time depends on the model of humidifier and the water conductivity), the humidifier steams up.



ATTENTION




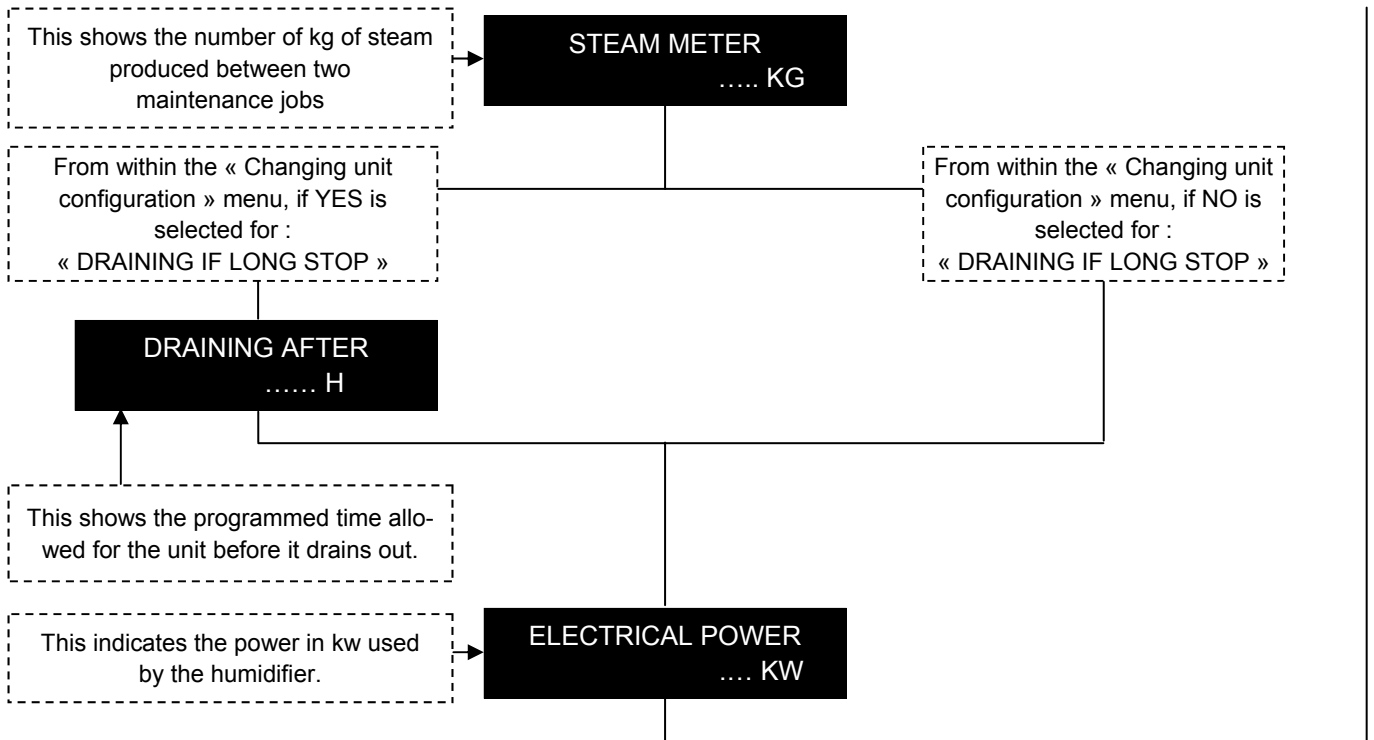
- A press on button 1 will allow you to shift to sub-menu for changing configuration parameters.
- Then scroll display using the up (2) or down (3) keys.
- The selected parameter will flash and press return key (1) for recording.



(continued)



- Press the  key for changing menu at any time.

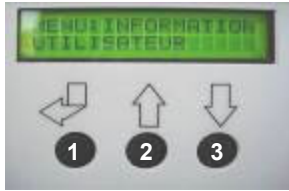




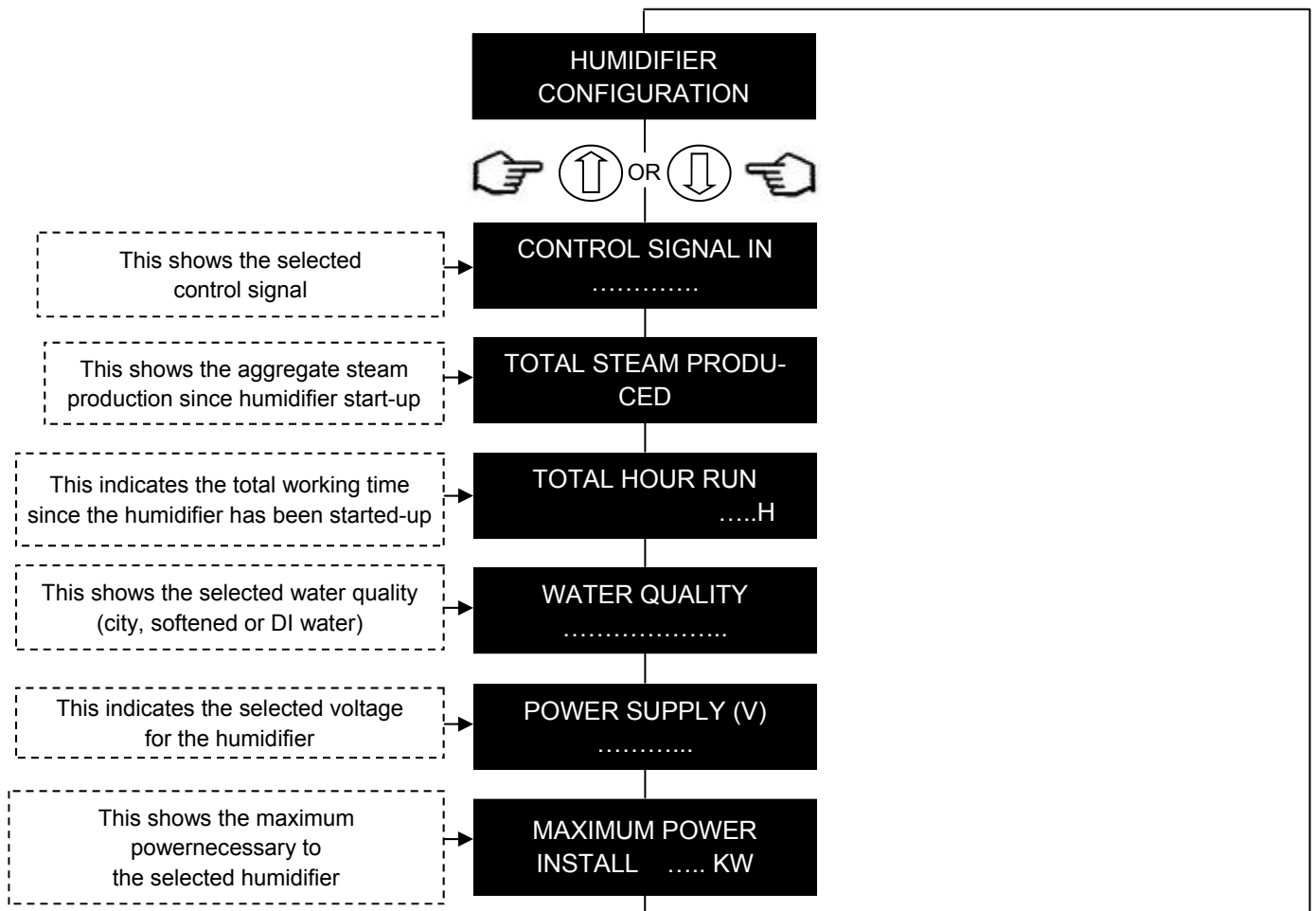
ELECTROVAP RTH-LC

Humidifier status menu

ATTENTION



- A press on button 1 will allow you to shift to sub-menu for changing configuration parameters.
- Then scroll display using the up (2) or down (3) keys.
- The selected parameter will flash and press return key (1) for recording.









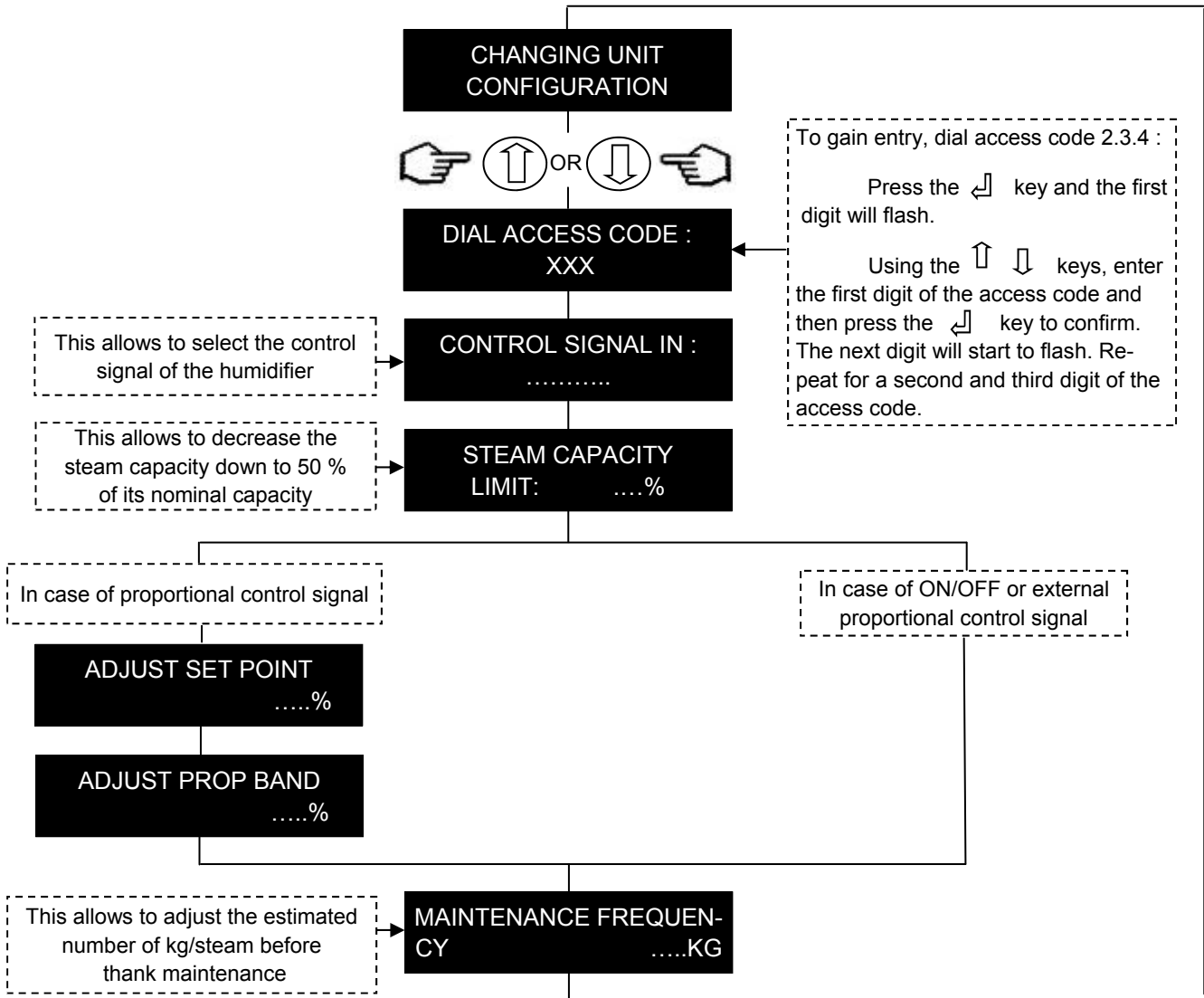
How to change the operating parameters /

Example:

STEAM CAPACITY
LIMIT : %

- Scroll menu to get this message, press the  key and the value will flash.
- Using the  OR  keys, increase or decrease the value.
- Once the desired value is reached, press the  key to enter the data.
- The display will read :

RECORDED
PARAMETER

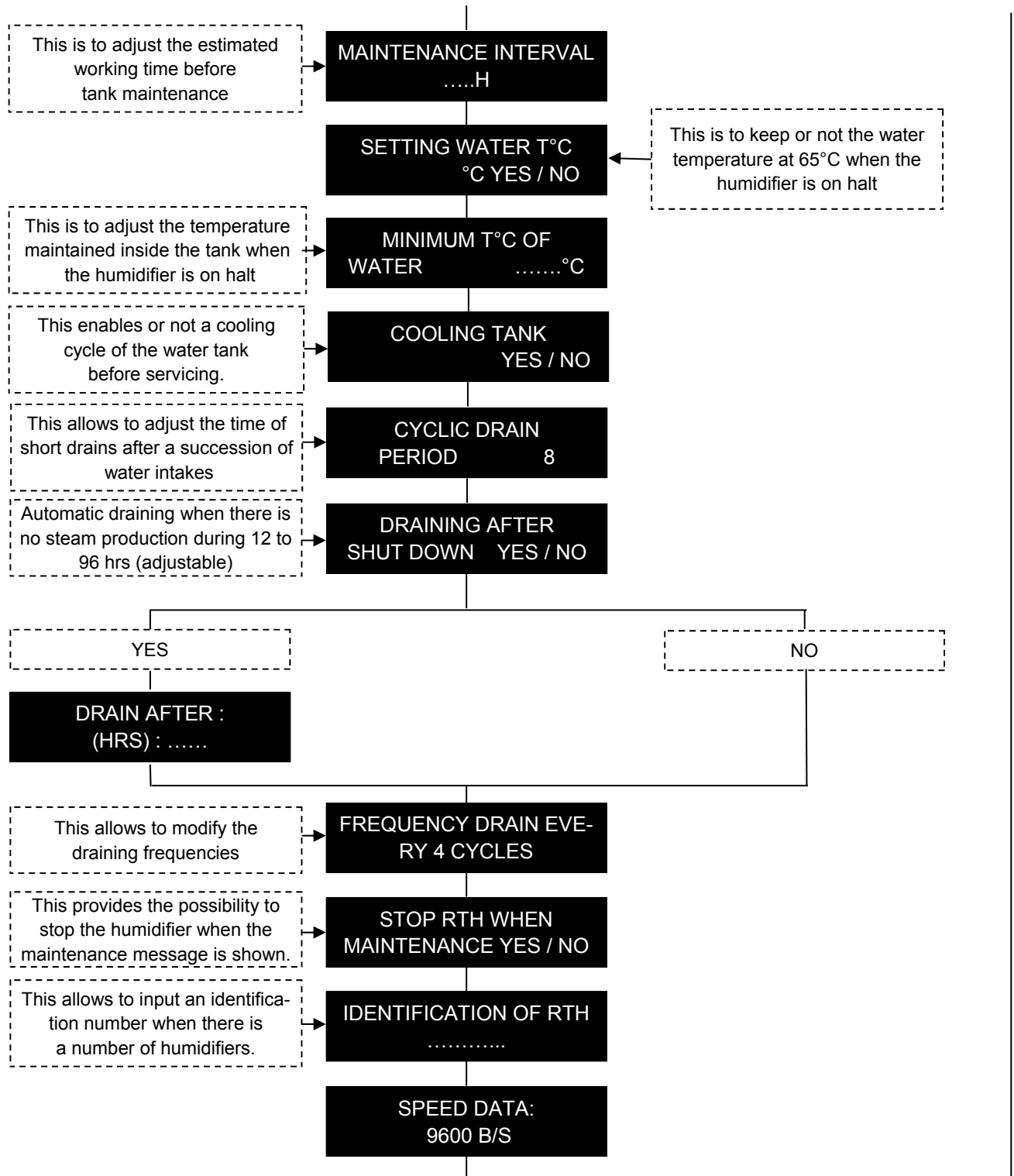




ELECTROVAP RTH-LC

Changing parameters menu

(continued)



Alerts

What you should do when :

NO WATER IN THE WATER LEVEL DETECTOR

Humidifier status : the unit is on halt

- Switch the humidifier off.
- Control the internal water piping.
- Control the water level detection system.

Please revert to the « maintenance » section of this manual

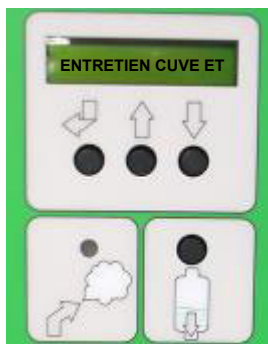
Maintenance warning

What you should do when :

CLEANING : OUTLET VALVE + TANK

Humidifier status : the unit is on halt

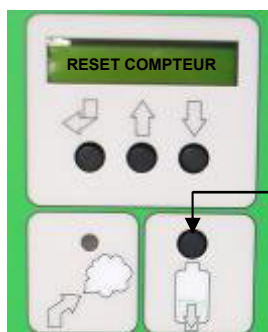
- Switch the humidifier off.
- Please revert to the « maintenance » section of this manual and apply the maintenance procedure.
- Switch the humidifier on again.



RTH humidifier with software version V05_08 or above :

- Press first on  then press on 

- The humidifier can work again and the maintenance timer can be reset for the selected value (s.a. page 28-29).



The display reads :

Press this push button to go back to « STEAM PRODUCED » displayed message.

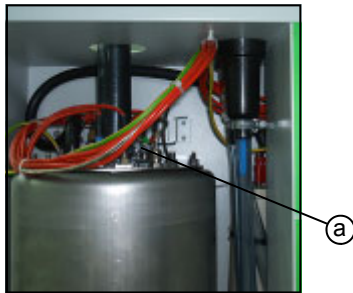
Picture n°1



- Drain the tank out by pressing the manual drain button (s.a. picture n° 1). Wait for complete draining and allow the tank to cool down (if this feature has been enabled).



Picture n°2



- Cut off the power supply at the power switch-board and switch off the RTH humidifier.



Picture n°3



- Screw off the front door, lift it a little and take it away. Remove the black steam hose from the steam tank (s.a. picture n°2) and draw it out the humidifier.

Picture n°4



- Unscrew all the screws of the boiler top with a 10 mm wrench (s.a. picture n°3).

Picture n°5



- Lift the boiler up to get it free from its base (s.a. picture n° 4).

(continued)

Picture n°6



- Put the heating element assembly on the top of the humidifier (s.a. picture n° 6).

Picture n°7



- Put a container or the optional flexible calcius collecting bag on ground and empty the boiler contents in it (s.a. picture n° 7).

- **Take care : the tank gasket should be changed whenever the boiler is maintained (s.a. picture n° 8). Retigthen all the collar clamps.**



Do not scratch harshly, hit or use corrosive liquids on the heating elements.

Picture n°8



- Uncap the water level tank and clean the 4 electrodes (s.a. picture n° 9).

Do not use any solvent to clean the water level tank nor special glues if the tank needs being attended but use teflon. Use a scraper on sensor electrodes if needed.



Picture n°9

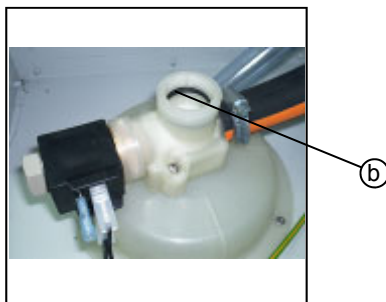


- Set back the high water level tank cap. Reassemble the boiler cover assembly and the boiler in the same position.



- Make sure there is still the O ring in the drain valve body before putting back the steam boiler (s.a. picture n° 10-b).

Picture n°10



Tighten up all the screws of the boiler top and reconnect the steam hose.



DRAIN VALVE MAINTENANCE



The drain valve should be maintained whenever the steam cylinder is maintained or changed.



Once the steam cylinder has been pulled out (please refer to the « cleaning of the steam cylinder » page), disconnect the drain valve supply wires.



Unscrew the solenoid retaining nut and remove the washer. Put them on the cylinder compartment tray.



Remove the coil from the valve stem.



Unscrew and remove the valve stem and the filling hose from the valve body.

Important : Apply some soap on the O-ring and the cylinder draining outlet



Remove the « O » ring and the drain valve collar. Remove any pieces of calcius, rinse the steam and the body with fresh water.

Assemble in reverse order.

Once the drain valve has been cleaned up, put the boiler back in its compartment in proceeding this way : set the maintaining clip on the steam cylinder outlet, engage the drain outlet into the drain valve and push the cylinder downward. Locate the steam hose and fasten the clamp.

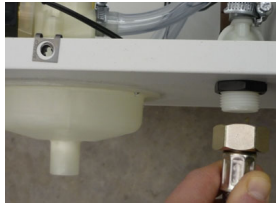


Ensure that all the clamps are properly tightened whenever the humidifier is maintained.

INLET VALVE MAINTENANCE



The inlet valve should be maintained every 6 months as a minimum and after 50 hours operation.



Isolate the water supply and remove the water supply hose from the valve.



Disconnect the electrical wires from the coil.



Untighten the collar clamp and remove the water feed hose.

Unscrew the black nut ① and lay it on the cylinder compartment tray.



Take the valve out and remove the basket filter from the base of the valve with a pair of long nose pliers. Pull the coil out with a flat screw driver.



Wash the basket filter under clean water to remove any dirt and debris.

Replace whole valve if cleaning is not practical or replace coil if necessary.

Assemble in reverse order taking care to replace collar clamp if necessary.

Ensure that everything is correctly assembled and switch the humidifier on.

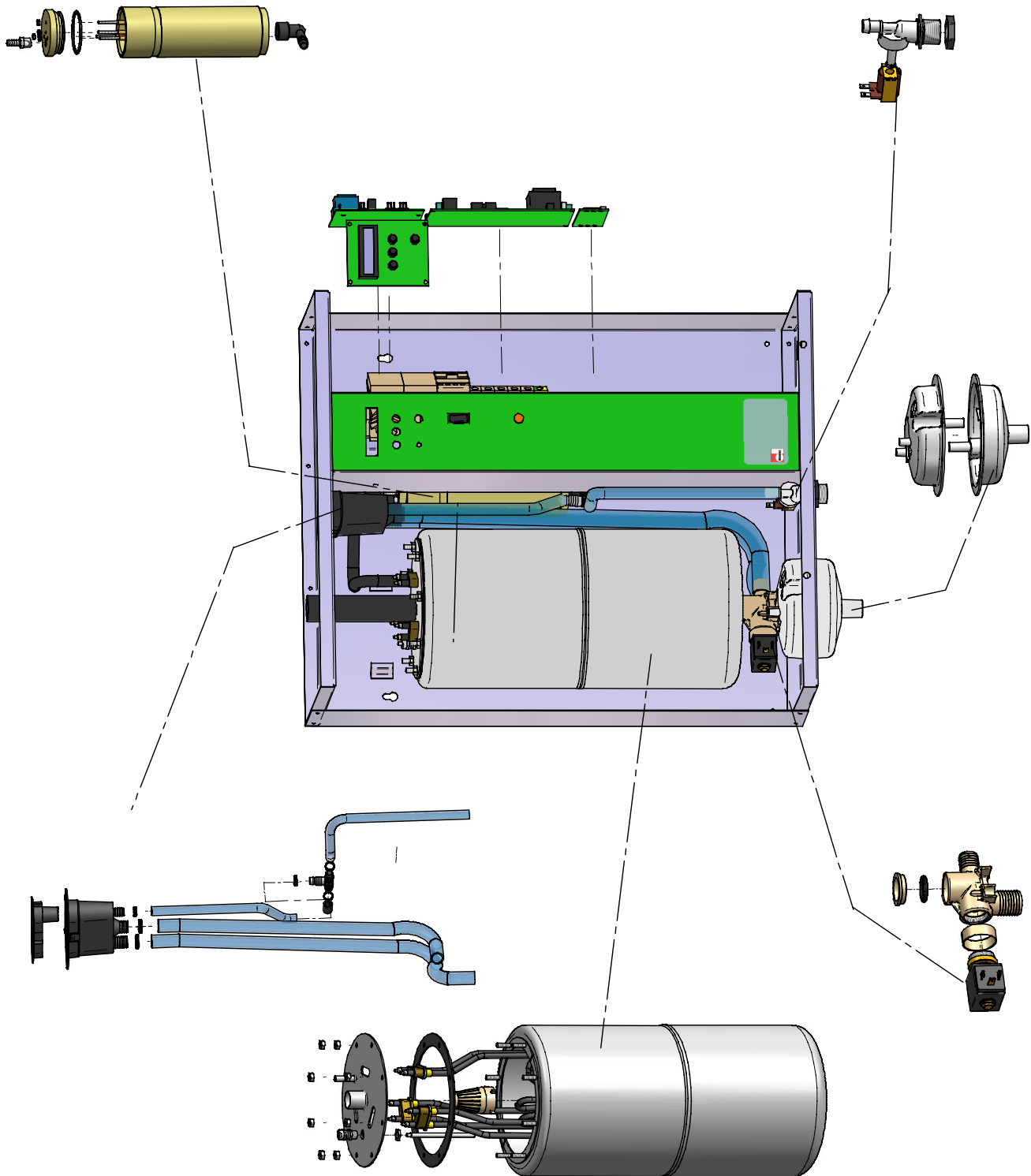


Ensure that all the clamps are properly tightened whenever the humidifier is maintained.

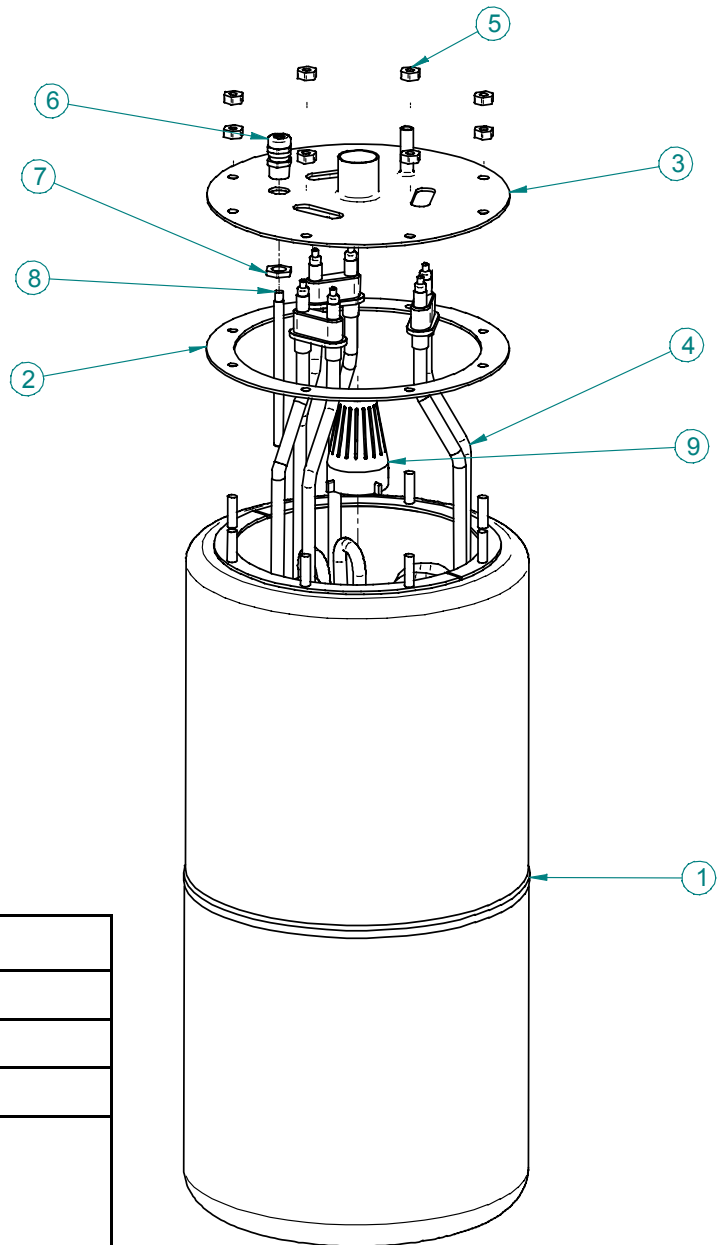
ELECTROVAP RTH-LC

Split view & component parts

OVERVIEW



STAINLESS STEEL BOILER

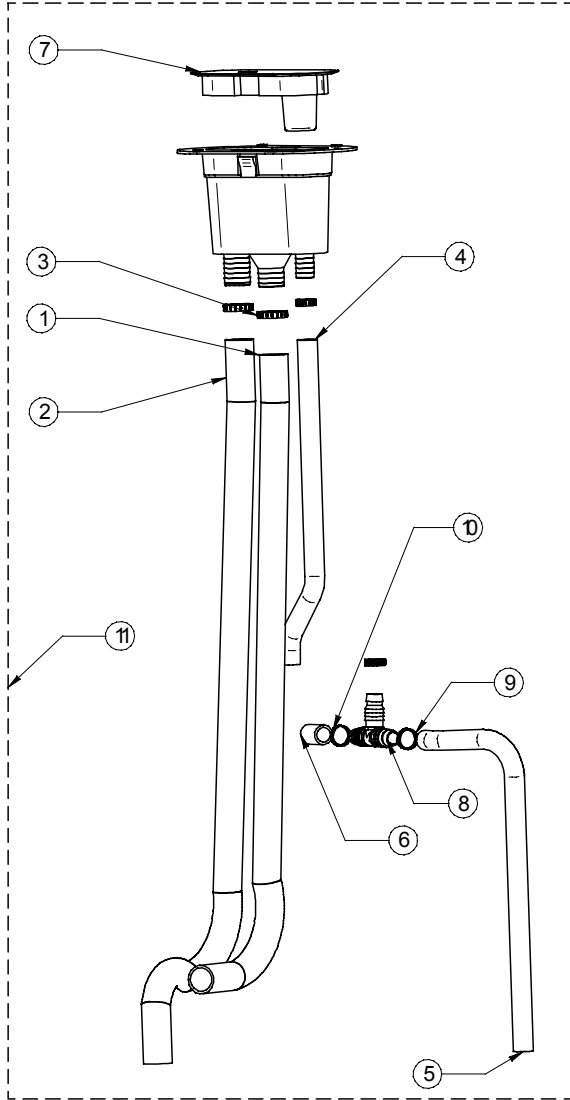


Rep	Code	Description
1		Stainless steel cylinder
2	930553	Cylinder gasket
3		Cylinder top
4	930500	Heating element 1,9KW (230V)
	930547	Heating element 1,9KW (277V)
	930503	Heating element 4,3KW (230V)
	930548	Heating element 4,3KW (277V)
5		Watertight nut M6
6	930505	Metal stuffing box
7		Stuffing box screw
8	930504	PT100 temperature sensor
9		PPH inner filter

ELECTROVAP RTH-LC

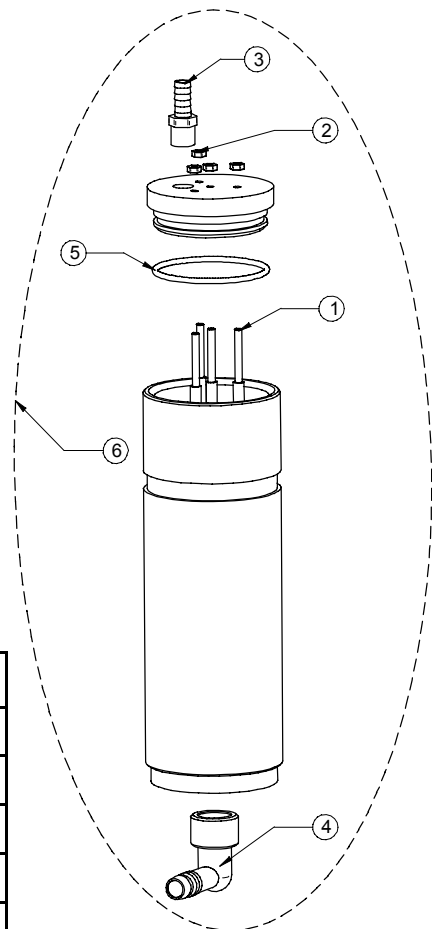
Split view & component parts

Filling cup



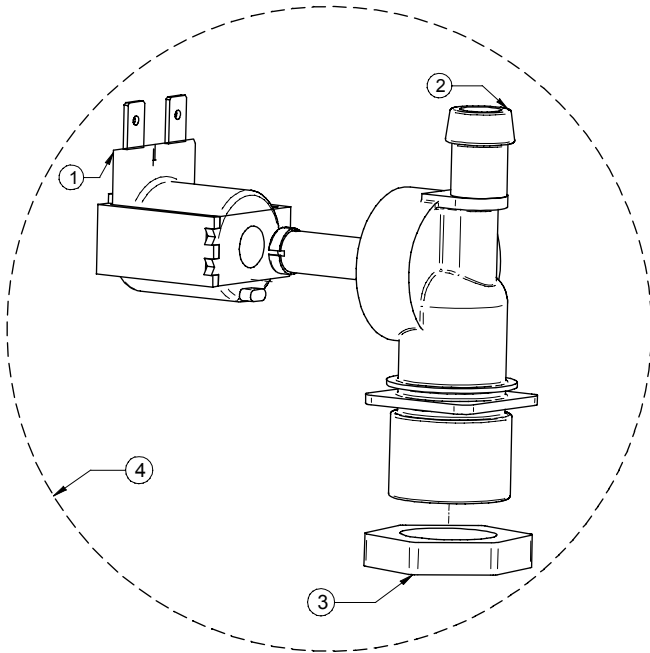
Rep	Code	Description
1		Water hose Ø18x22mm
2		Water hose Ø18x22mm
3	930082	Ring clamp Ø16x27mm
4		Water feed hose Ø12x16mm
5		Water feed hose Ø12x16mm
6	930520	Overflow hose Ø18x22mm - Lg103cm
7	930231	Filling cup assy
8	930506	Black PVC fluted tee Ø20x20x20mm
9	930081	Ring clamp Ø12x22mm
10	930083	Ring clamp Ø20x32mm
11		RTH-LC filling cup with hoses

Water level detection tank



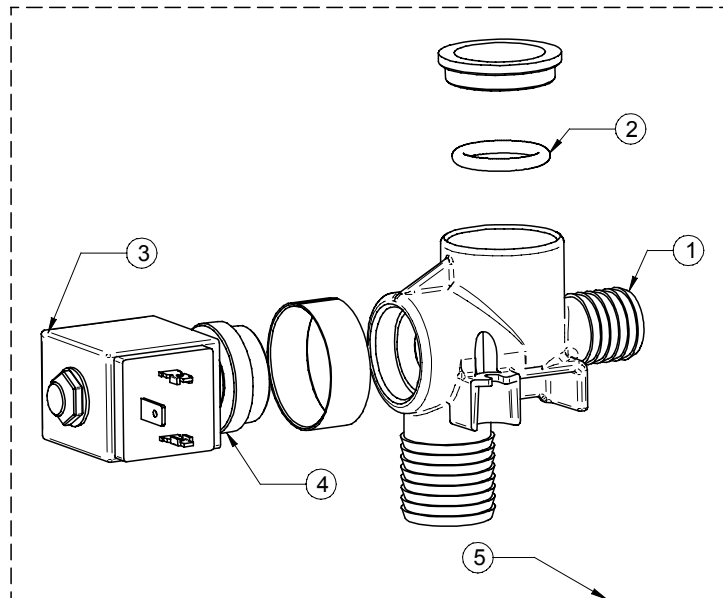
Rep	Code	Description
1	930521	Water level sensor (set of 4)
2		Stainless steel nut Ø4mm
3		Fluted chromium plated tip 1/4" G - Ø8mm
4	930523	Red O ring SIL70 (bag of 3)
5	930522	Water level assy

Water inlet valve



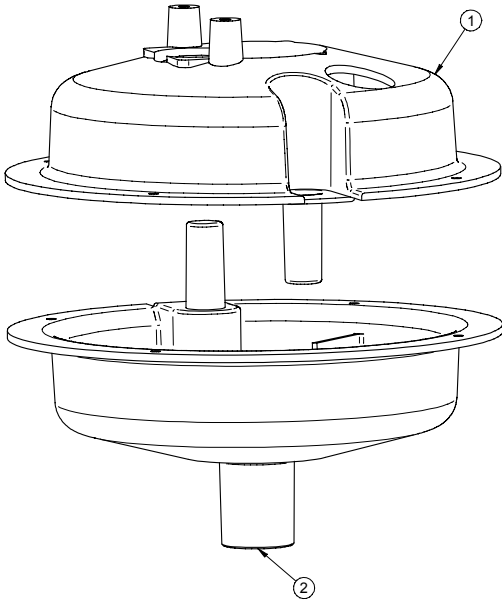
Rep	Code	Description
1	930160	Inlet valve solenoid coil
2		Inlet valve body N2
3	930224	Screw 3/4"
4	930151	Complete inlet valve

Water drain valve



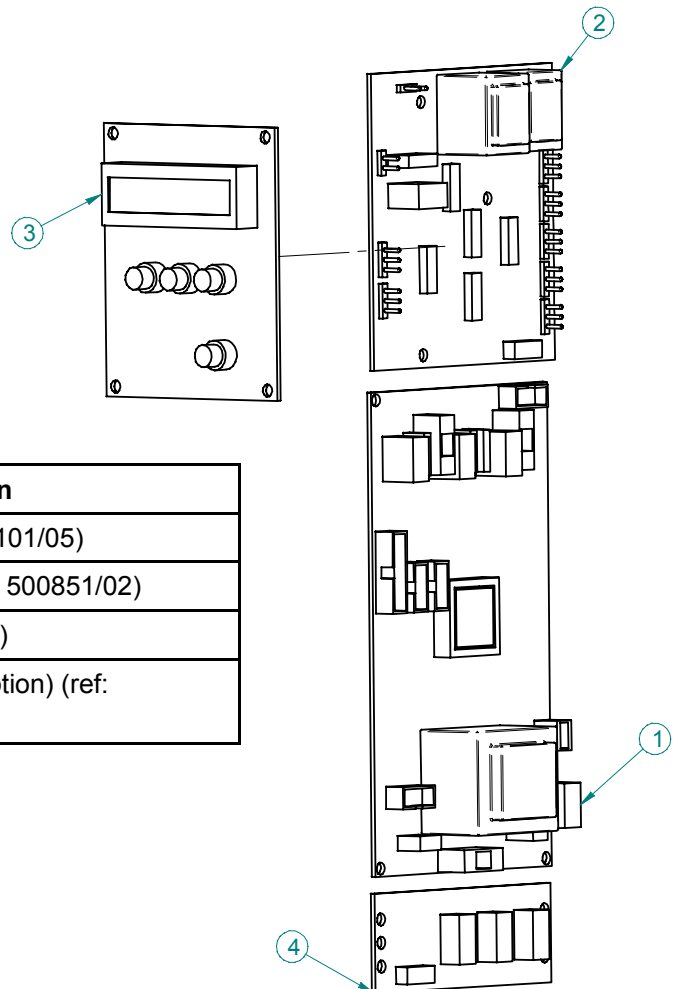
Rep	Code	Description
1	930307	Drain valve body
2	930189	Drain valve O ring (bag of 10)
3	930161	Drain valve solenoid coil
4	930220	Insert (+ drain valve coil)
5	930153	Complete drain valve

Drain cups



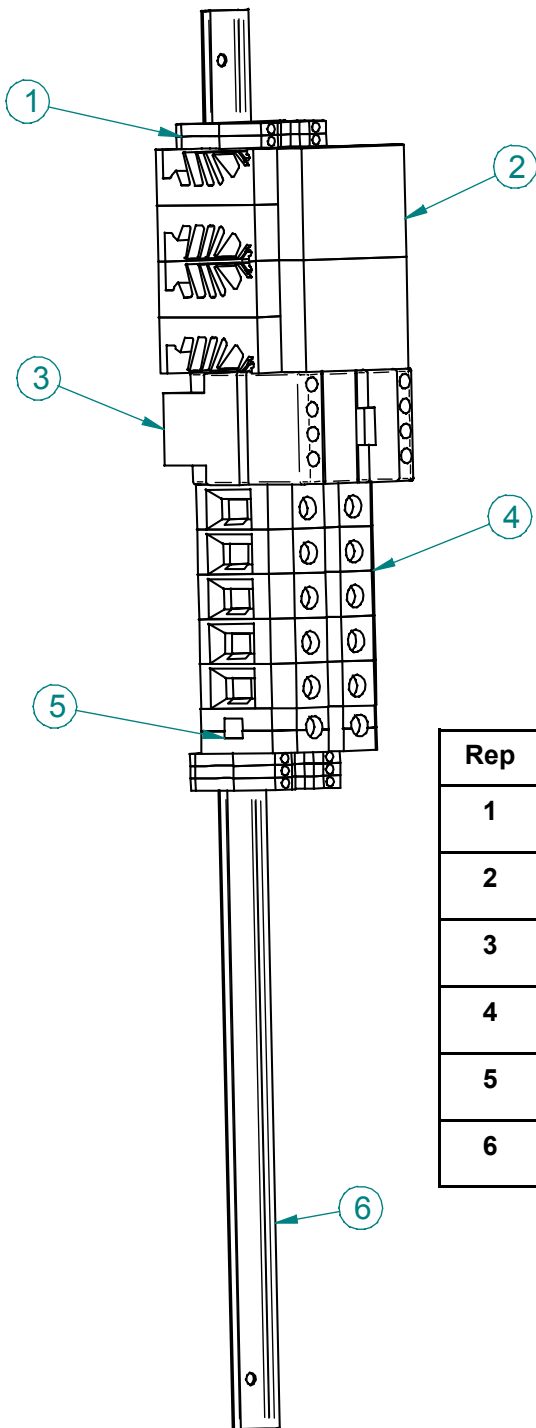
Rep	Code	Description
1	930072	RTH-LC drain cup (upper)
2	930078	RTH-LC drain cup (lower)

Electronic circuitry



Rep	Code	Description
1	930532	RTH-LC main board (ref: 500101/05)
2	930530	Water level control board (ref: 500851/02)
3	930101	Display board (ref: 500600/03)
4	930106	Remote information board (option) (ref: 500400/03)

Electrical Din rail



Rep	Code	Description
1		Electrical terminal JSAK 2,5 EN
2	930549	Static relay + heatsink RTH-LC
3	930093	Power contactor LC1-D32
4		Electrical terminal JSAK 16 EN
5		Earth terminal JEK 35/35
6		DIN rail



For further information, please contact :



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Internet: <http://www.devatec.com>, E-mail: france@devatec.com



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