ElectroVap® RTH

Steam humidifier

Resistive steam humidifier

devatec

Contents

ELECTROVAP RTH-V2

Product accreditation

DIRECTIVES CE APPLIED

Electromagnetic Compatibility Directive :	**89/336/EEC, 2004/108/EC**
Low Voltage Directive :	**73/23/EEC, 2006/95/EC**
« Machinery » Directive:	**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 distrubances induced by radio frenquency 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

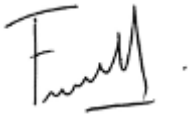
ELECTROVAP RTH

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 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.

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 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 µs 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.

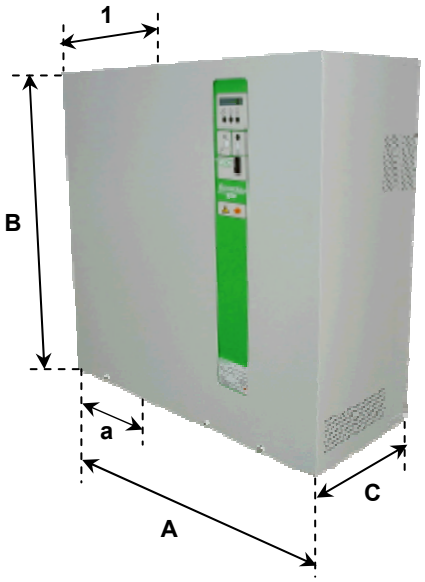
The photographs are for illustrating purposes only.

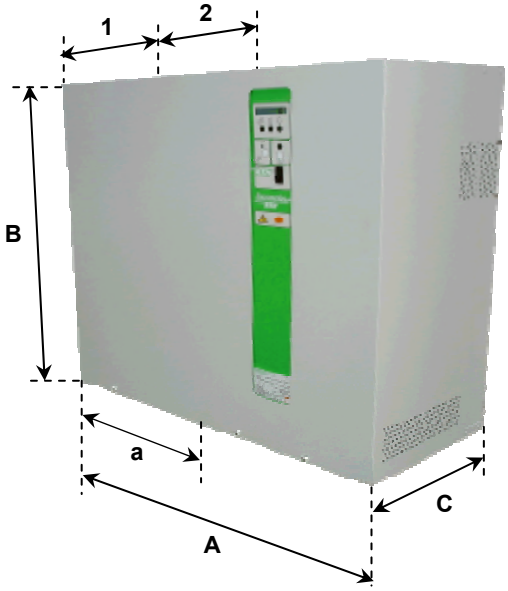
ELECTROVAP RTH-V2

Dimensions

RTH 5 to 50

Overall dimensions (mm)		Steam outlet (mm)		Drain outlet (mm)		Weight empty (kg)	In operation (kg)
A	805	1	320	a	75	45	75
B	755						
C	345						





RTH 60 to 100

Overall dimensions (mm)		Steam outlet (mm)		Drain outlet (mm)		Weight empty (kg)	In operation (kg)
A	1205	1	175	a	75	70	140
B	755	2	538				
C	345						

Unit wall installation

- Unpack the unit and check for any damage. **A drilling template is supplied with the packing : make sure to pick it up before throwing away the packing material.**

- Damage to packing and/or unit must be noticed to carrier by registered letter within 3 working days.

- Provide free space all around the unit : 1 m. to 1.20 m. from the floor of the humidifier, 1.25 m. ahead & 0.80 m. on the right hand side for allowing access for maintenance.

- Flatten the supplied drilling template against the mounting wall and mark the mounting holes. Drill the 7 (seven) holes (for RTH 5 to 50) or the 11 (eleven) holes (for RTH 60 to 100).

- Insert screws and bolts appropriate for support (3 upwards and 4 (RTH 5 to 50) or 8 (RTH 60 to 10) downwards (see after page 8).

- Screw the 3 (three) upper screws allowing about 10 mm for hanging the cabinet. Hang the cabinet and tighten the upper screws for securing the mounting.

- Untighten the screwing knob (1) a little, tip the stainless steel tank (2) up to tighten the tank holding steel cord (3).

- Take the cover off the water level tank (4).

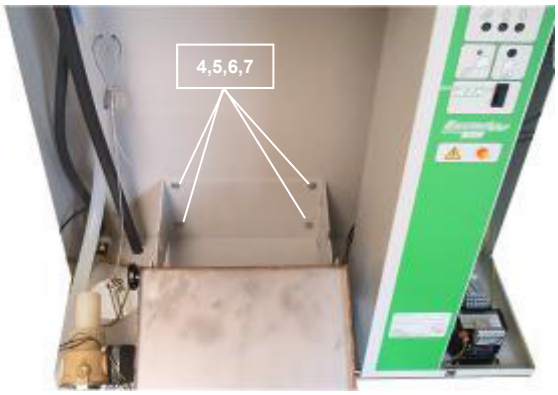
(continued)

Unlock the tank cap and lay it upside down on the top of the humidifier.

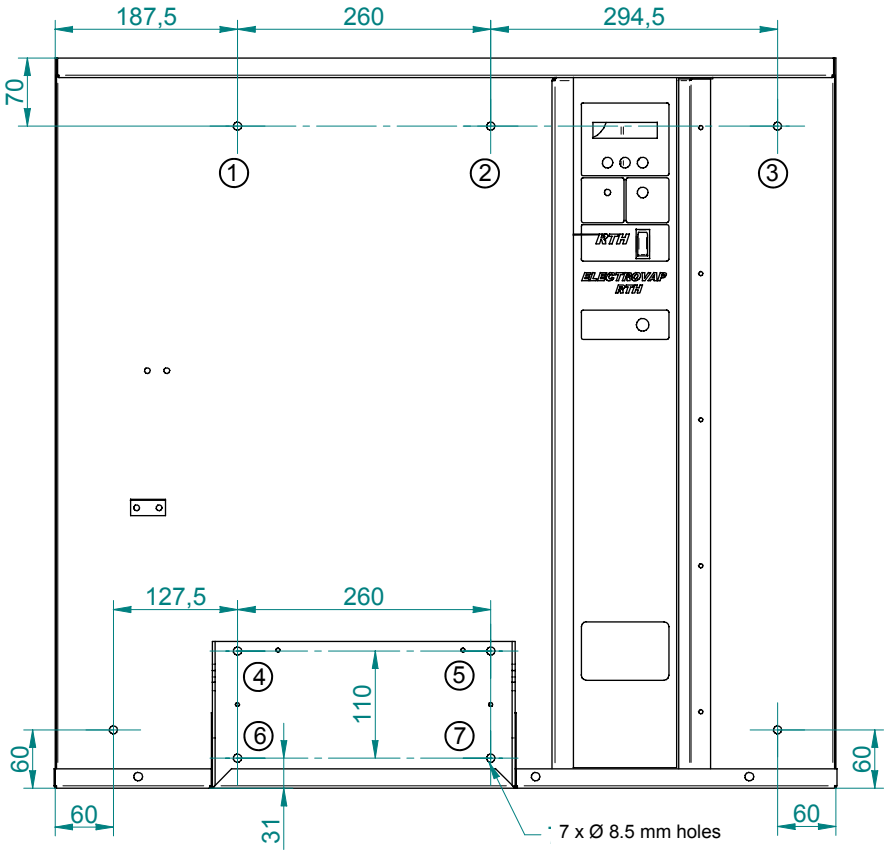
- Release the holding steel cord while holding the tank;
- Let the tank gently tip under it stops;
- Insert screws on 4, 5, 6 & 7 and thighten up all the 7 (RTH 5 to 50) or 11 (RTH 60 to 100) screws.

You can now :

- Tip the tank back to intermediate position and attach the tank holding sheet cord ;
- Put the tank cover back and lock it with the 4 fasteners ;
- Reconnect the high water level wires;
- Set the humidifier tank back to upright position and screw up knob 1.



RTH 5 to 50



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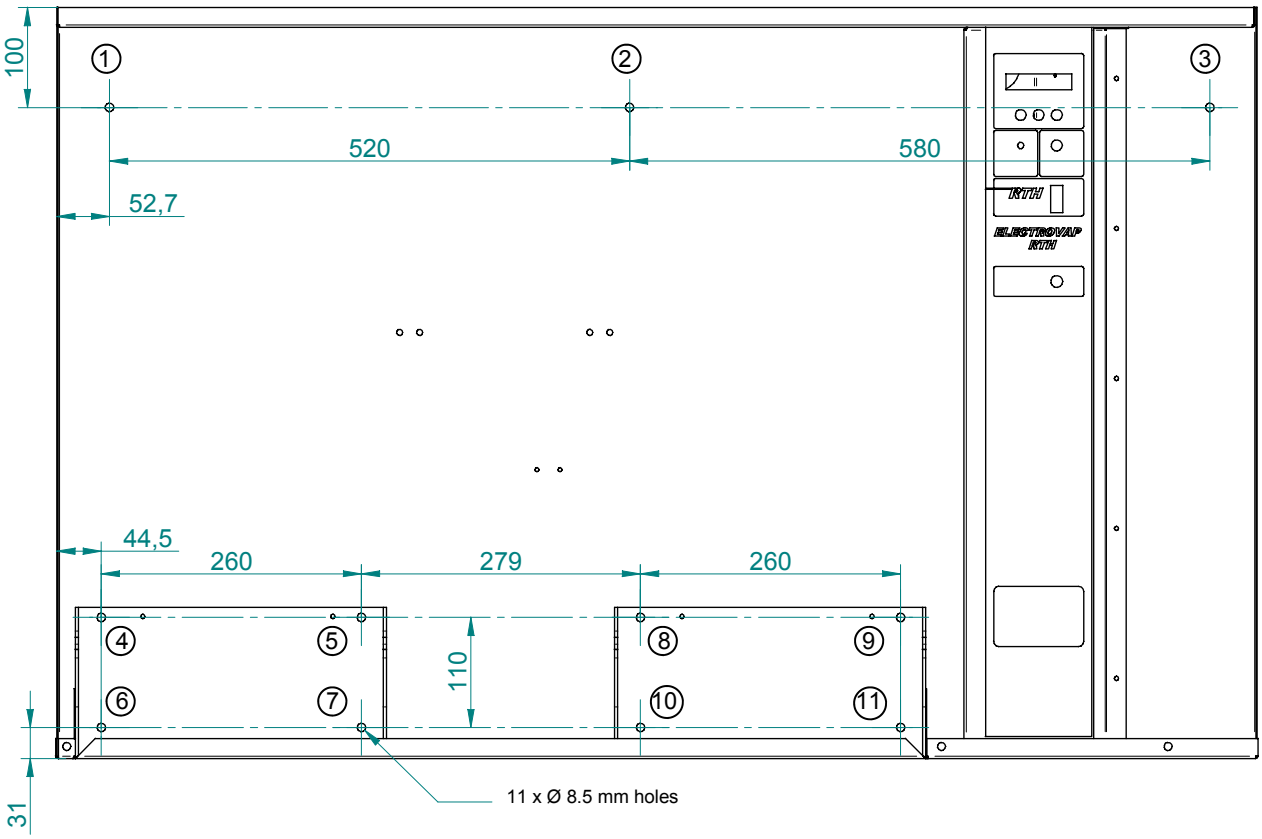
RTH 60 to 100



ref: 999995

- For a ground installation, support legs are available (s.a. attached pictures) :

  - Part nb : 999995 for RTH 5 to 50
  - Part nb : 999993 for RTH 60 to 100

ref: 999993

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 36).

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 waterproof 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 consentration (3 to 6° dA) : < 100mg/l, poor concentration inCO2, organic elements in poor concentration.

The RTH humidifier can run with the following water qualitiers :

- 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 disolved 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 5 to 20 = 1 x Ø 60 mm (Ø 60 / Ø 40 mm contriction union to consider, see after page n°14)
   RTH 30 to 50 = 1 x Ø 60 mm
   RTH 60 to 100 = 2 x Ø 60 mm

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

- If P is inferior to 220mm CE (Water column) i.e. 2157 Pa.
- If P is between 220mm CE and 370mm CE (3627 Pa.) , our optional filling cup plateform must 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.

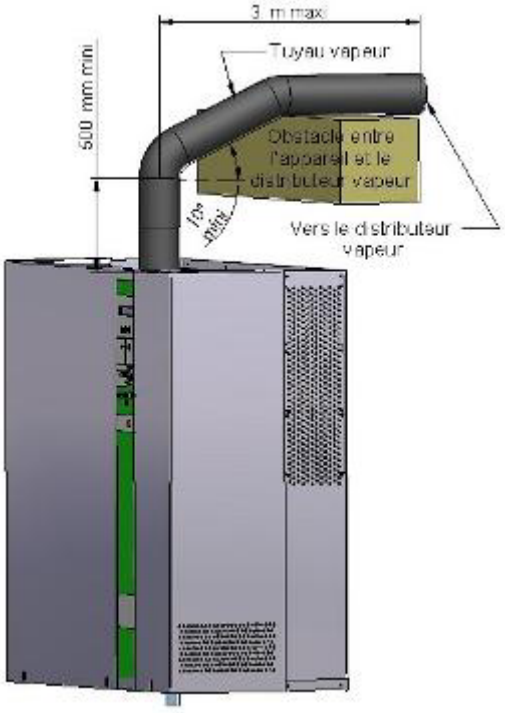
The humidifier should be located within 3 m. of the steam distribution pipe. If the distance is superior to 3 m. insulated steel or copper pipe of a slightly larger diameter must be used.

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.

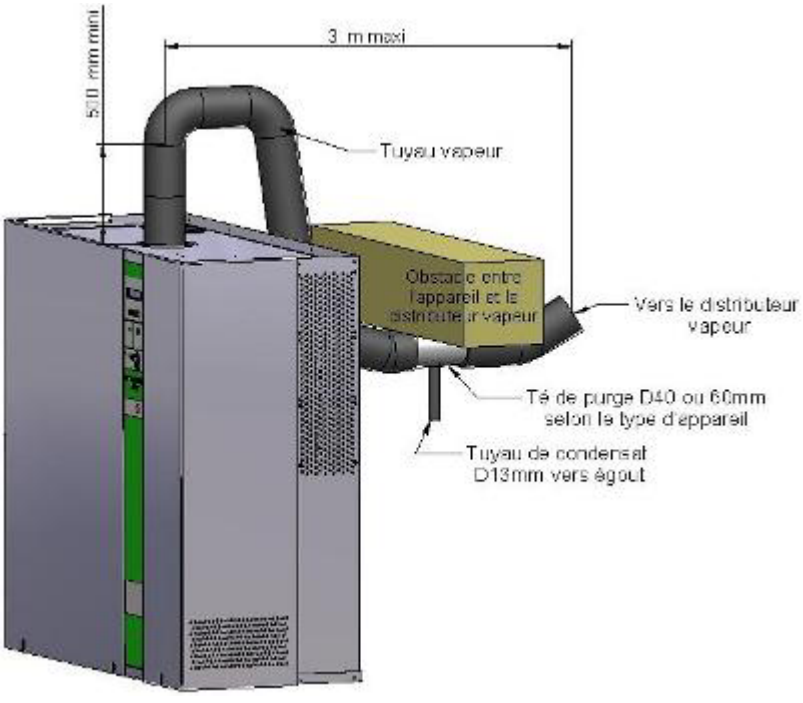
Radius of bend for steam hose :

- Ø 40mm steam hose = 400mm minimal radius
- Ø 60mm steam hose = 750mm minimal radius

Example a



Example b



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

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

   RTH 5 to 100 : 1.5 m Ø 40mm 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. drawings 1, 2 and 3).

5. A funnel can also be used (s.a. pict. 3), 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, 2, 3 and 4).

Fig.1

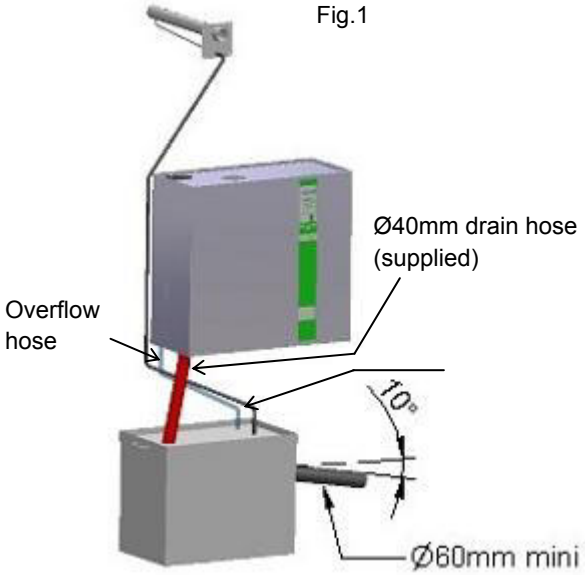
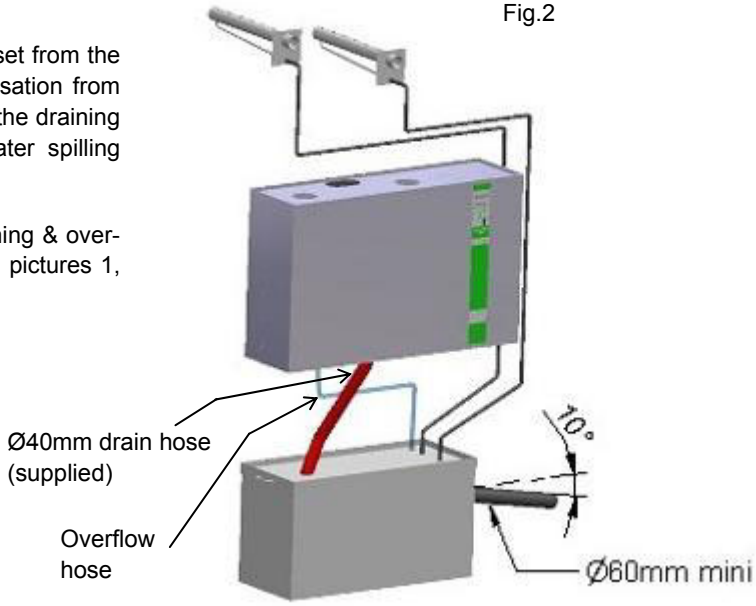


Fig.2



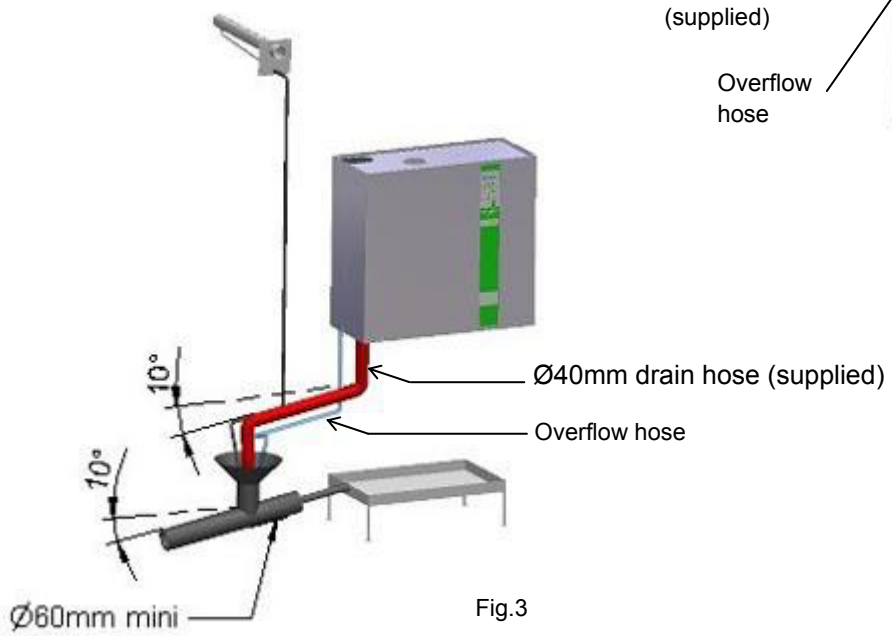


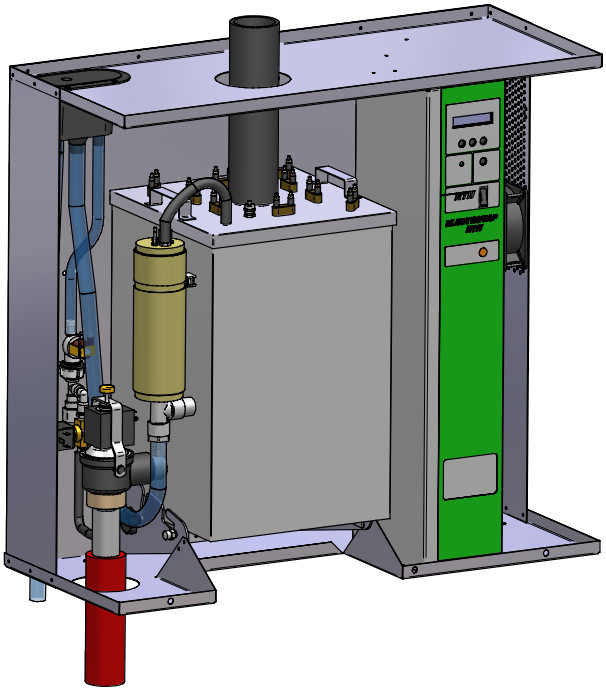
Fig.3

Drain water cooling kit (option)

How it works

The draining water of a steam humidifier is very hot and it may be necessary to cool it down. This unsophisticated device makes it possible to cool it down to 65°C (149°F) when the feeding water is around 15°C (59°F).

Whenever the humidifier drains, the water inlet coil(rep. 7) of the cooling device is prompted and sends cold water inside the drain hose (rep 11).

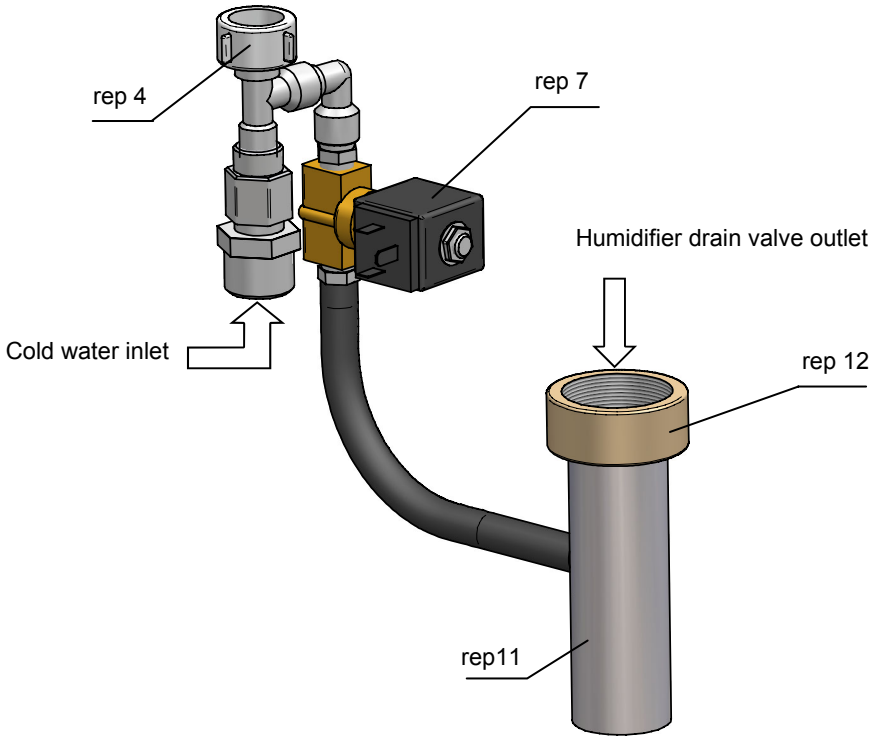


Installation

This cooling device is physically attached to the water inlet valve via the 3/4" connecting screw (rep. 4) and on the drain valve via the 1 1/2" connecting screw (rep. 12) of the drain valve. The cooling inlet valve is electrically supplied by connection to the drain valve coil.

This option can be installed on all existing humidifiers..

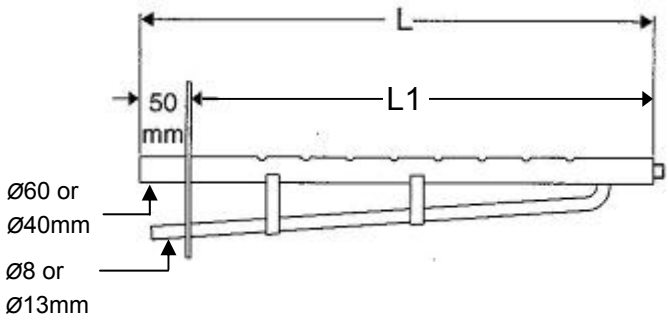
Option—Drain water cooling kit (ref: 311800540)



ELECTROVAP RTH-V2

Steam dispersion pipe

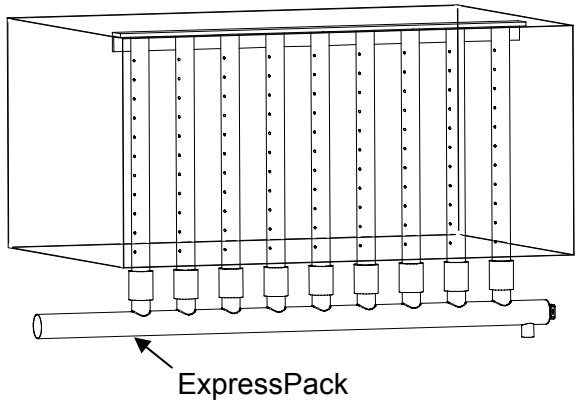
Steam distribution pipe



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



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 selction table

Steam distribution pipe for RTH 5 to 20	L1
	mm
D40 -L290	290
D40-L590	590
D40-L790	790
D40-L1000	1000
D40-L1250	1250
D40-L1500	1500

Ø60/40mm contriction union used with pipe Ø 40 mm for RTH 5 to 20.

Steam distribution pipe for RTH 30 to 100	L	L1
	mm	mm
DL-1	304	254
DL-1,5	457	407
DL-2	609	559
DL-3	914	864
DL-4	1219	1169
DL-5	1524	1474
DL-6	1829	1779
DL-7	2133	2083
DL-8	2438	2388
DL-9	2743	2693
DL-10	3048	2998

POSITIONING OF THE STEAM DISTRIBUTION PIPE

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, descrided 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 »

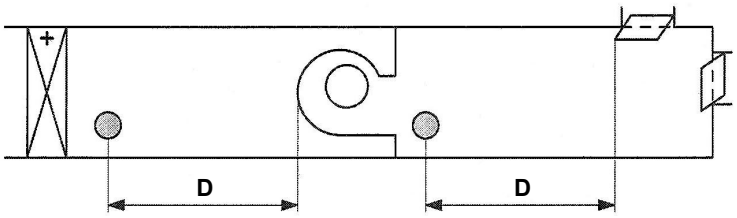
	% RH1 inlet air							
	5	10	20	30	40	50	60	70
% HR2 outlet air	Minimum humidification distance « D » in m.							
40	0.9	0.8	0.7	0.5	-	-	-	-
50	1.1	1	0.9	0.8	0.5	-	-	-
60	1.4	1.3	1.2	1	0.8	0.5	-	-
70	1.8	1.7	1.5	1.4	1.2	1	0.7	-
80	2.3	2.2	2.1	1.9	1.7	1.5	1.2	0.8
90	3.5	3.4	3.2	2.9	2.7	2.4	2.1	1.7

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

HR1 = relative humidity of air before humidification in %.

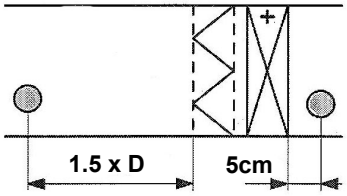
HR2 = relative humidity of air after humidification in %.

Before / after fan



before / after heater/filter

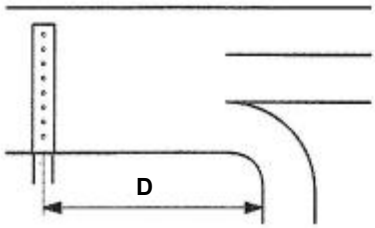
D distance in



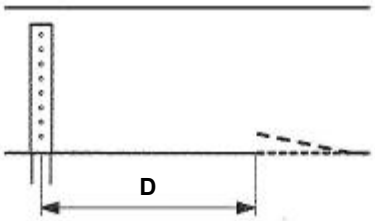
2,5 x D before thin particule filter

(CONTINUED)

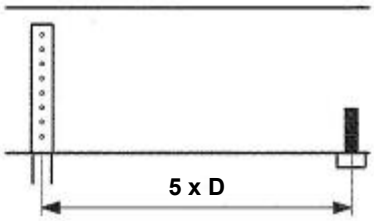
Before a junction



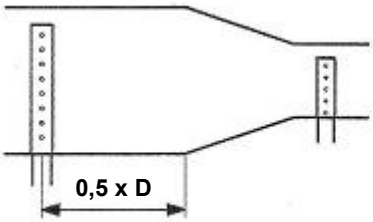
before an air opening



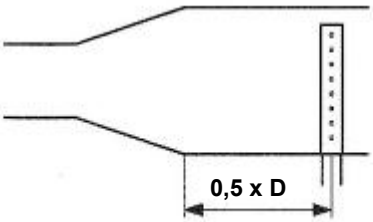
before a humidity sensor



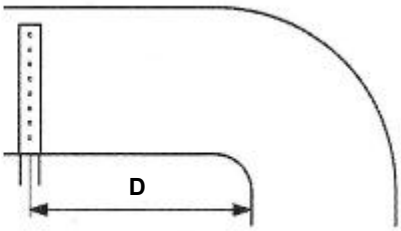
Before / after a constriction



before an expansion



before a bend



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.

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Steam pipe positioning

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

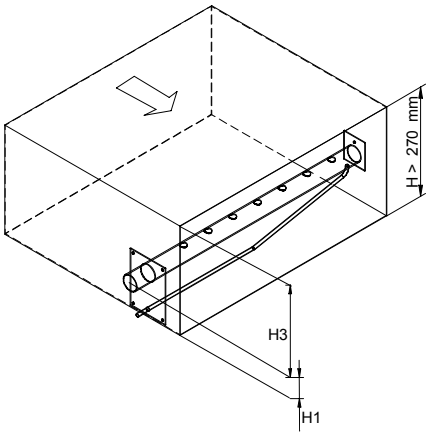
H1 = 110mm = Minimum height between the duct floor and the axle of the steam pipe.

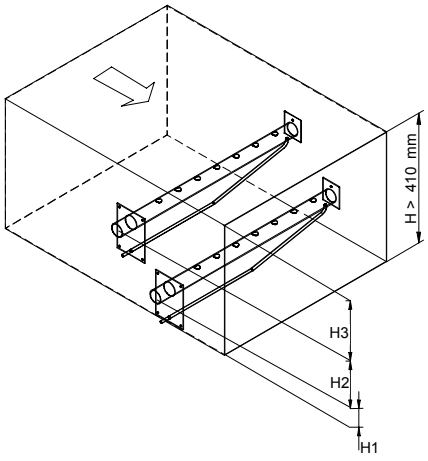
H2 = 140mm = Minimum distance between two pipes.

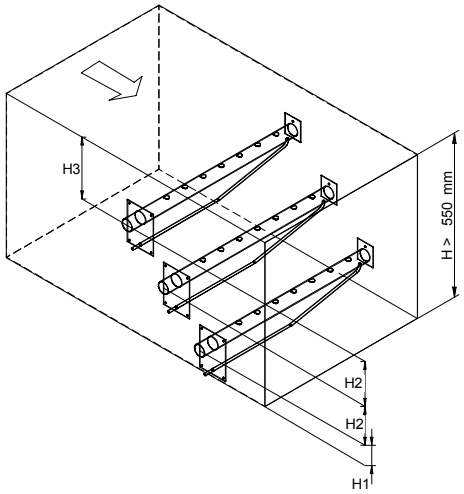
H3 = 160mm = Minimum height between the duct top and the axle of the steam pipe.

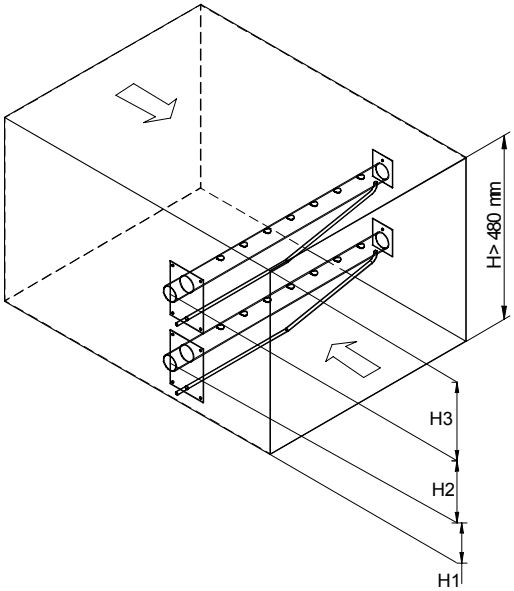
The H3 distance can be 80 mm at the shortest in case the steam pipe is installed at an angle of 30°.

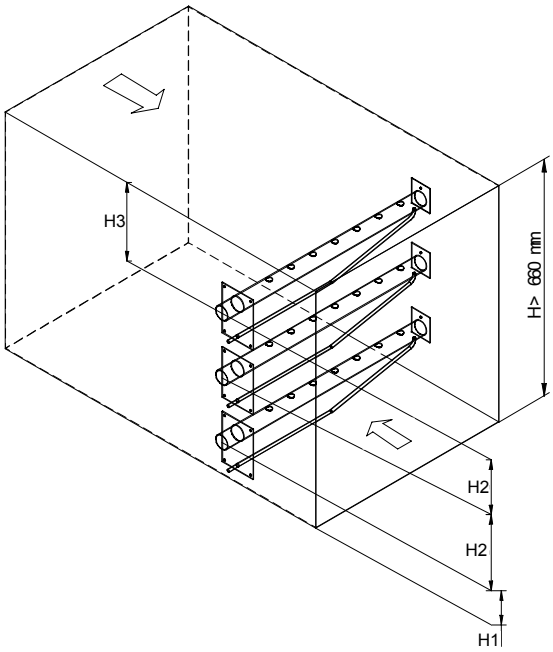
The arrow shows the direction of the air flow.











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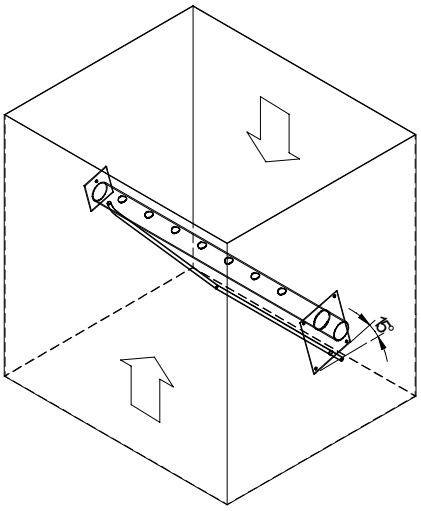
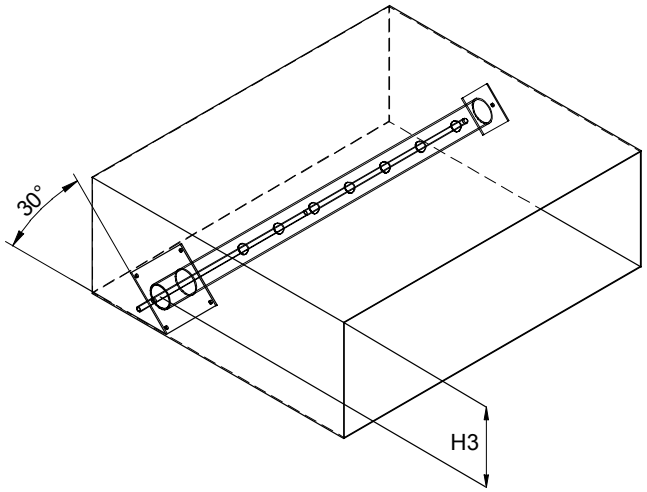
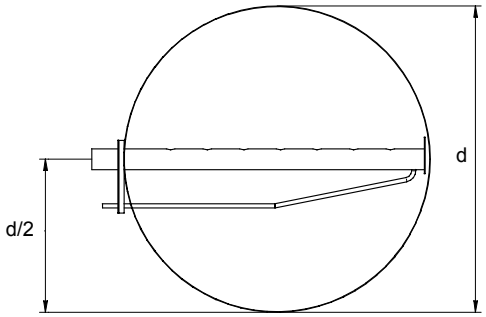


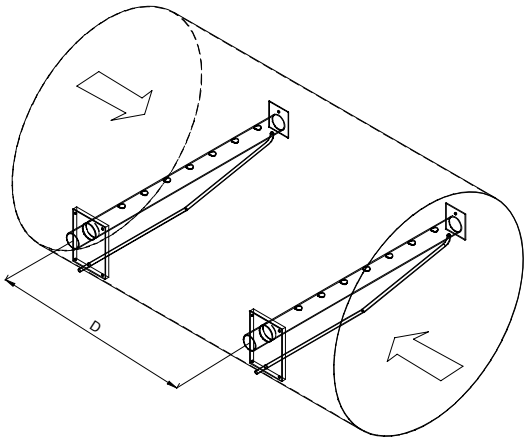
In vertical ducts where the air flow is upward or downward, the steam distribution pipe(s) must be tilted by 15° sideways.



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

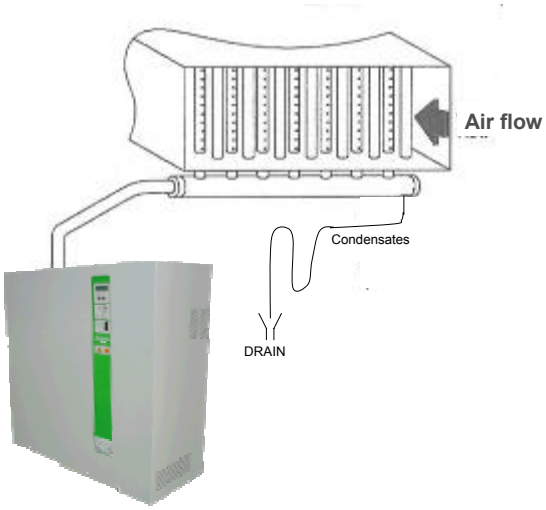


d = Duct diameter

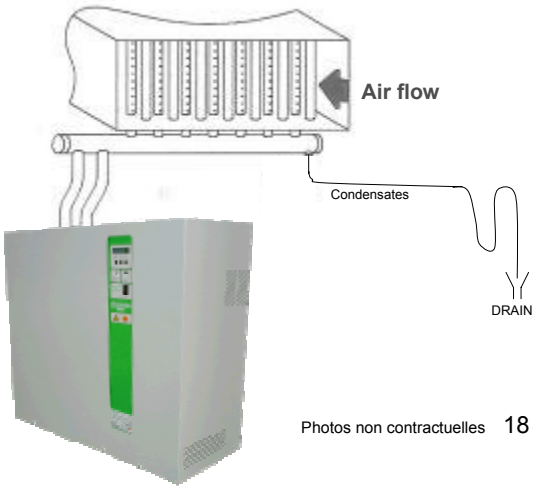


D = Humidification distance

Duct installation with ExpressPack - RTH 5 to 50



Duct installation with ExpressPack - RTH 60 to 100



ELECTROVAP RTH-V2

Steam pipe installation

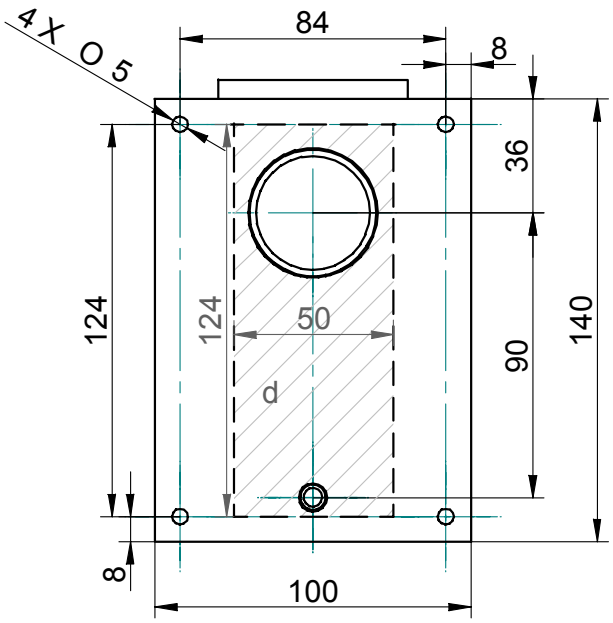
For ensuring the best steam distribution possible, we would recommend to install the steam pipes in either diameter as per the two methods described underneath.

How to install in a duct

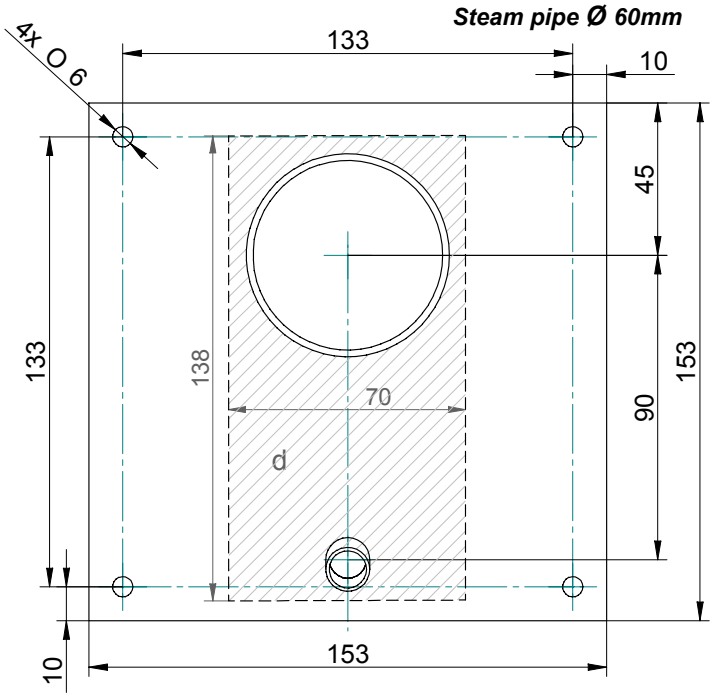
Your steam pipes must be screwed onto the ventilation duct by the fixing plate with a set of 4 bolts and nuts of Ø 5 mm.

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

Steam pipe Ø 40mm

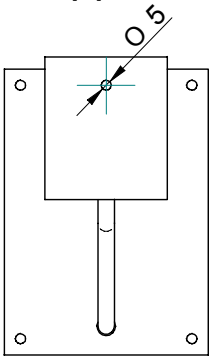


Steam pipe Ø 60mm

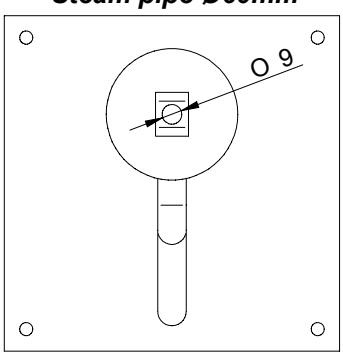


How to attach the pipe en (inside the duct)

Steam pipe Ø40mm



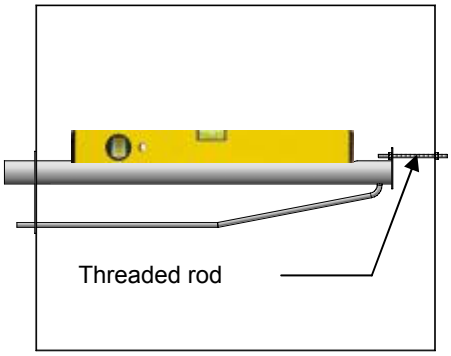
Steam pipe Ø60mm



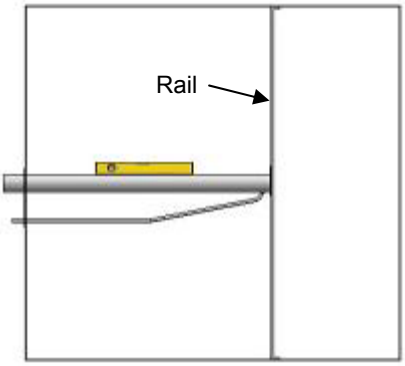
The end of the steam pipe should be attached to the duct with a threaded rod of Ø 5 mm going from the dedicated hole of the fixing plate to the outside of the duct and attached by a couple of nuts (method 1). A rail attached to the inner side of the duct can also be used - a 5mm bolt and nut are used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

The steam pipe must be at level with the duct.

Method 1



Method 2



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

The CV2 and EHFIII ventilation packs cannot be set on the top of the humidifier (see after attached pictures). The distance between the humidifier and the ventilation pack(s) should not exceed 3 m.

The connection of the steam hose between the humidifier and the ventilation packs is made by an adaptor for units :

- CV2 = Ø 60/25mm adaptor
- EHF3 = Ø 60/50mm adaptor

For RTH 60 to RTH 100, two EHF3 ventilation packs should be used equally distant (X). (X1=X2)

The electrical connection of the ventilation packs to the humidifier is via terminal block 3 & 4 on the DIN rail.

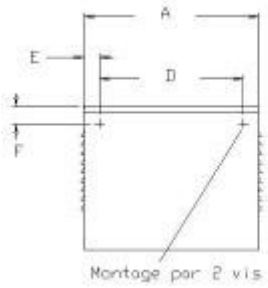
As far as the EHF-3 is concerned, please revert to the recommendations given on the EHF-3 information sheet. Never connect the EHF-3 unit on the terminals 3 & 4 of the humidifier when a 100VA transformer is installed inside the ElectroVap RTH.

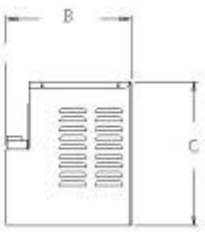
Allow a 3 m. distance ahead to the ventilation pack for a free diffusion of steam.

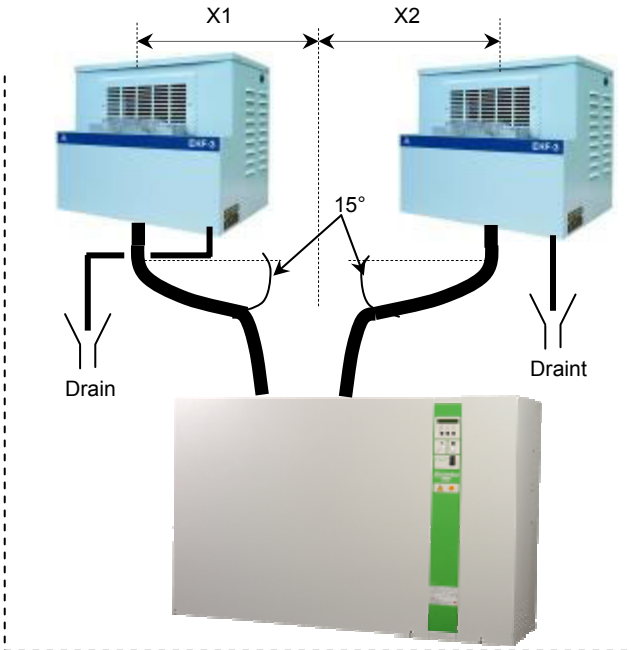
Overall dimensions of room ventilation packs

CV2

EHF-3







	A	B	C	D	E	F	Weight Kg	dB	Kg/h maxi output	m3/h	Compatible with
CV2	520mm	260mm	350mm	360mm	80mm	35mm	12	38	20	300	RTH 5 to 20
EHF3	495mm	356mm	406mm	406mm	44mm	51mm	15	48	55	780	RTH 30 to 50

Recommandations:

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 ELMC electronic components are very sensitive to electrostatic shocks. Appropriate steps must be taken before any operation.

RTH steam humidifier in 1 x 115V - 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	1,4	115	1	9,3	1,1	1	1	4,3 (230V)
8	2,1	115	1	13,5	1,6	1	2	4,3 (230V) 1,9 (230v)

RTH 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	8,3	1,9	1	1	1,9 (230V)
5	6	230	1	19	4	1	1	4,3 (230V)
8	8	230	1	27	6	1	2	4,3 (230V) 1,9 (230v)

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

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

RTH steam humidifier in 3 x 208V - 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)
8	6	208	3	13	5	1	3	1,9 (230V)
18	14	208	3	29	10	1	3	4,3 (230V)
25	20	208	3	42	15	1	6	3 x 1,9 (230V) 3 x 4,3 (230V)
36	28	208	3	59	21	1	6	4,3 (230V)
44	34	208	3	72	26	2	9	6 x 4,3 (230V) 3 x 1,9 (230V)
51	40	208	3	85	31	2	12	6 x 4,3 (230V) 6 x 1,9 (230V)
62	48	208	3	101	36	2	12	9 x 4,3 (230V) 3 x 1,9 (230V)

RTH steam humidifier in 3 x 230V - 50/60Hz

RTH	Steam production (kg/h)	Voltage (V)	Nb of phase(s)	Intensité (A)	Power (KW)	Nb of boiler(s)	Nb of heating element(s)	Power of heating element (KW)
8	8	230	3	14	6	1	3	1,9 (230V)
18	17	230	3	32	13	1	3	4,3 (230V)
25	24	230	3	47	19	1	6	3 x 1,9 (230V) 3 x 4,3 (230V)
36	34	230	3	65	26	1	6	4,3 (230V)
44	42	230	3	79	31	2	9	6 x 4,3 (230V) 3 x 1,9 (230V)
51	49	230	3	94	37	2	12	6 x 4,3 (230V) 6 x 1,9 (230V)
62	59	230	3	112	45	2	12	9 x 4,3 (230V) 3 x 1,9 (230V)

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

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

ELECTROVAP RTH-V2

Electrical table

RTH steam humidifier in 3 x 380V - 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	380	3	6	4	1	3	1,9 (277V)
7	7	380	3	8	5	1	3	1,9 (230V)
10	11	380	3	12	8	1	3	4,3 (277V)
15	16	380	3	18	12	1	3	4,3 (230V)
20	22	380	3	25	16	1	6	4,3 (277V)
30	31	380	3	36	24	1	6	4,3 (230V)
40	38	380	3	44	29	1	9	6 x 4,3 (230V) 3 x 1,9 (230V)
50	47	380	3	54	35	1	9	4,3 (230V)
60	53	380	3	60	39	2	12	6 x 4,3 (230V) 6 x 4,3 (277V)
70	63	380	3	72	47	2	12	4,3 (230V)
80	76	380	3	88	58	2	18	12 x 4,3 (230V) 6 x 1,9 (230V)
90	85	380	3	98	64	2	18	15 x 4,3 (230V) 3 x 1,9 (230V)
100	94	380	3	108	71	2	18	4,3 (230V)

RTH 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	6	4	1	3	1,9 (277V)
7	8	400	3	8	6	1	3	1,9 (230V)
10	12	400	3	13	9	1	3	4,3 (277V)
15	17	400	3	19	13	1	3	4,3 (230V)
20	24	400	3	26	18	1	6	4,3 (277V)
30	35	400	3	38	26	1	6	4,3 (230V)
40	42	400	3	46	32	1	9	6 x 4,3 (230V) 3 x 1,9 (230V)
50	52	400	3	57	39	1	9	4,3 (230V)
60	60	400	3	65	45	2	12	6 x 4,3 (230V) 6 x 4,3 (277V)
70	69	400	3	76	53	2	12	4,3 (230V)
80	85	400	3	93	64	2	18	12 x 4,3 (230V) 6 x 1,9 (230V)
90	94	400	3	103	71	2	18	15 x 4,3 (230V) 3 x 1,9 (230V)
100	104	400	3	113	78	2	18	4,3 (230V)

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

Photos non contractuelles

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

RTH steam humidifier in 3 x 415V - 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	6	415	3	6	4	1	3	1,9 (277V)
7	8	415	3	9	6	1	3	1,9 (230V)
10	13	415	3	14	10	1	3	4,3 (277V)
15	19	415	3	20	14	1	3	4,3 (230V)
20	26	415	3	27	19	1	6	4,3 (277V)
30	37	415	3	39	28	1	6	4,3 (230V)
40	46	415	3	48	34	1	9	6 x 4,3 (230V) 3 x 1,9 (230V)
50	56	415	3	59	42	1	9	4,3 (230V)
60	64	415	3	68	49	2	12	6 x 4,3 (230V) 6 x 4,3 (277V)
70	75	415	3	79	57	2	12	4,3 (230V)
80	91	415	3	96	69	2	18	12 x 4,3 (230V) 6 x 1,9 (230V)
90	101	415	3	107	77	2	18	15 x 4,3 (230V) 3 x 1,9 (230V)
100	112	415	3	118	85	2	18	4,3 (230V)

RTH steam humidifier in 3 x 440V - 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)
7	6	440	3	6	5	1	3	1,9 (277V)
15	14	440	3	14	11	1	3	4,3 (277V)
20	21	440	3	20	15	1	6	3 x 1,9 (277V) 3 x 4,3 (277V)
30	29	440	3	29	22	1	6	4,3 (277V)
40	35	440	3	35	27	1	9	6 x 4,3 (277V) 3 x 1,9 (277V)
50	43	440	3	43	33	1	9	4,3 (277V)
60	50	440	3	50	38	2	12	9 x 4,3 (277V) 3 x 1,9 (277V)
70	58	440	3	57	43	2	12	4,3 (277V)
80	71	440	3	70	53	2	18	12 x 4,3 (277V) 6 x 1,9 (277V)
90	79	440	3	78	59	2	18	15 x 4,3 (277V) 3 x 1,9 (277V)
100	87	440	3	86	65	2	18	4,3 (277V)

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

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

ELECTROVAP RTH-V2

Electrical table

RTH steam humidifier in 3 x 460V - 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)
7	7	460	3	7	6	1	3	1,9 (277V)
15	16	460	3	15	12	1	3	4,3 (277V)
20	23	460	3	22	18	1	6	3 x 1,9 (277V) 3 x 4,3 (277V)
30	32	460	3	30	24	1	6	4,3 (277V)
40	39	460	3	37	29	1	9	6 x 4,3 (277V) 3 x 1,9 (277V)
50	47	460	3	45	36	1	9	4,3 (277V)
60	54	460	3	52	41	2	12	9 x 4,3 (277V) 3 x 1,9 (277V)
70	63	460	3	60	48	2	12	4,3 (277V)
80	77	460	3	73	58	2	18	12 x 4,3 (277V) 6 x 1,9 (277V)
90	86	460	3	82	65	2	18	15 x 4,3 (277V) 3 x 1,9 (277V)
100	95	460	3	90	72	2	18	4,3 (277V)

RTH steam humidifier in 3 x 480V - 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)
7	8	480	3	7	6	1	3	1,9 (277V)
15	17	480	3	16	14	1	3	4,3 (277V)
20	25	480	3	23	19	1	6	3 x 1,9 (277V) 3 x 4,3 (277V)
30	35	480	3	31	26	1	6	4,3 (277V)
40	42	480	3	38	32	1	9	6 x 4,3 (277V) 3 x 1,9 (277V)
50	52	480	3	47	39	1	9	4,3 (277V)
60	59	480	3	54	45	2	12	9 x 4,3 (277V) 3 x 1,9 (277V)
70	69	480	3	63	52	2	12	4,3 (277V)
80	84	480	3	76	63	2	18	12 x 4,3 (277V) 6 x 1,9 (277V)
90	94	480	3	85	71	2	18	15 x 4,3 (277V) 3 x 1,9 (277V)
100	103	480	3	94	78	2	18	4,3 (277V)

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

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

RTH steam humidifier in 3 x 575V - 50/60Hz

RTH	Steam production (kg/h)	Voltage (V)	Nb of phase(s)	Amperage (A)	Puissance (KW)	Nb of boiler(s)	Nb of heating element(s)	Power of heating element (KW)
7	7	575	3	5	5	1	3	1,9 (346V)
15	16	575	3	12	12	1	3	4,3 (346V)
20	23	575	3	17	17	1	6	3 x 1,9 (346V) 3 x 4,3 (346V)
30	32	575	3	24	24	1	6	4,3 (346V)
40	39	575	3	29	29	1	9	6 x 4,3 (346V) 3 x 1,9 (346V)
50	47	575	3	36	36	1	9	4,3 (346V)
60	54	575	3	41	41	2	12	9 x 4,3 (346V) 3 x 1,9 (346V)
70	63	575	3	48	48	2	12	4,3 (346V)
80	77	575	3	59	59	2	18	12 x 4,3 (346V) 6 x 1,9 (346V)
90	86	575	3	65	65	2	18	15 x 4,3 (346V) 3 x 1,9 (346V)
100	95	575	3	72	72	2	18	4,3 (346V)

RTH steam humidifier in 3 x 600V - 50/60Hz

RTH	Steam production (kg/h)	Voltage (V)	Nb of phase(s)	Amperage (A)	Puissance (KW)	Nb of boiler(s)	Nb of heating element(s)	Power of heating element (KW)
7	8	600	3	6	6	1	3	1,9 (346V)
15	17	600	3	12	12	1	3	4,3 (346V)
20	25	600	3	16	19	1	6	3 x 1,9 (346V) 3 x 4,3 (346V)
30	34	600	3	22	26	1	6	4,3 (346V)
40	42	600	3	27	32	1	9	6 x 4,3 (346V) 3 x 1,9 (346V)
50	51	600	3	33	39	1	9	4,3 (346V)
60	59	600	3	37	44	2	12	9 x 4,3 (346V) 3 x 1,9 (346V)
70	68	600	3	43	51	2	12	4,3 (346V)
80	84	600	3	53	63	2	18	12 x 4,3 (346V) 6 x 1,9 (346V)
90	93	600	3	59	70	2	18	15 x 4,3 (346V) 3 x 1,9 (346V)
100	103	600	3	65	78	2	18	4,3 (346V)

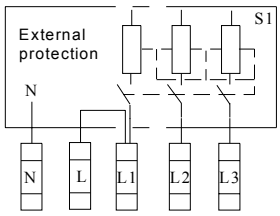
Beware ! Before connecting power, make sure that the electrical installation has been made according to the above-mentioned values.

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

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)

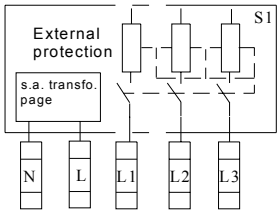


S1: triphase switch with automatic opening by striker fuses

Compulsory protection on three phases and command circuits

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

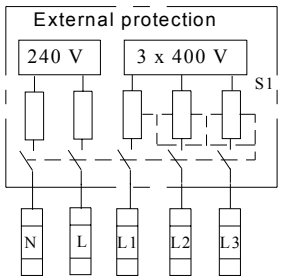
A transformer must be installed in the humidifier (s.a. techn. manual)



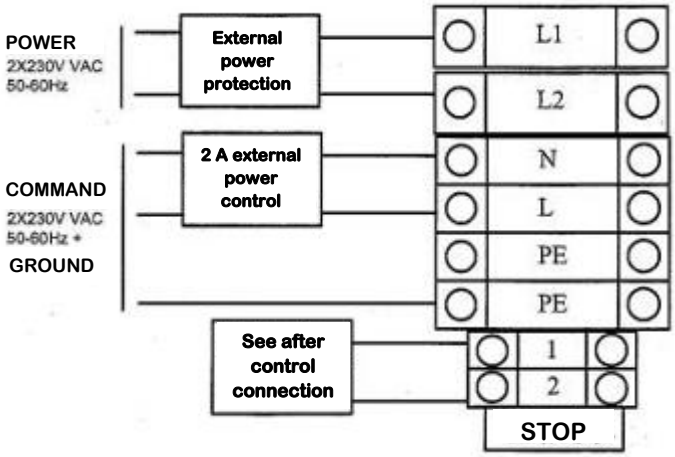
C) 3 phases without neutral
(3 x 400 V + 2 x 240 V)

The power and the control are supplied separately.

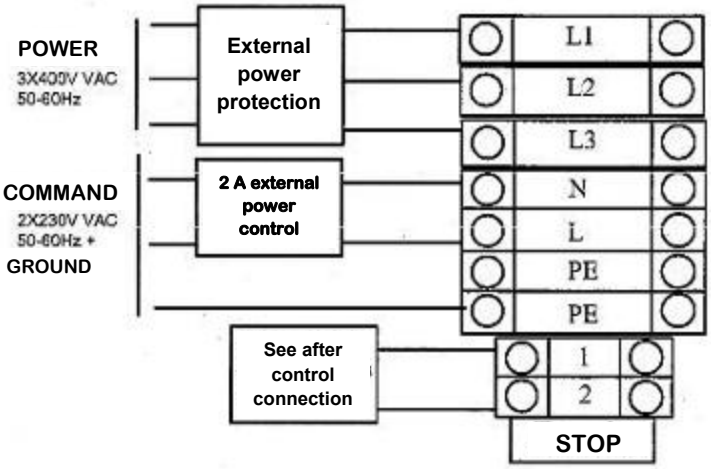
The command circuit must be shut in case a phase is missing



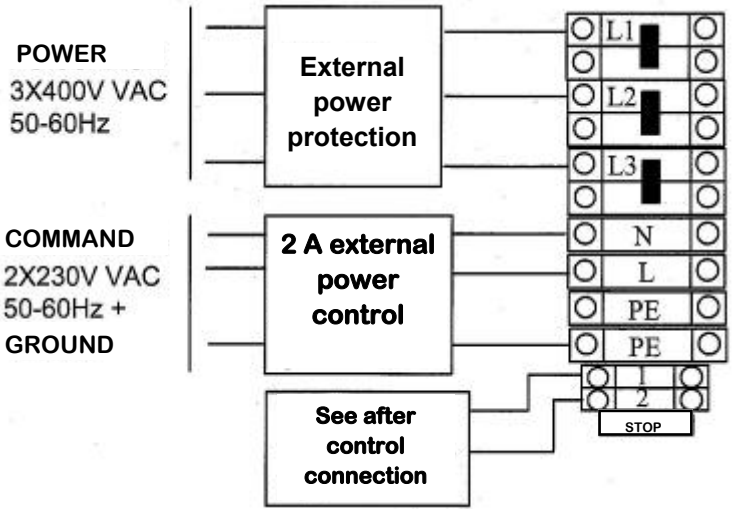
RTH 5



RTH 7 to 50



RTH 60 to 100

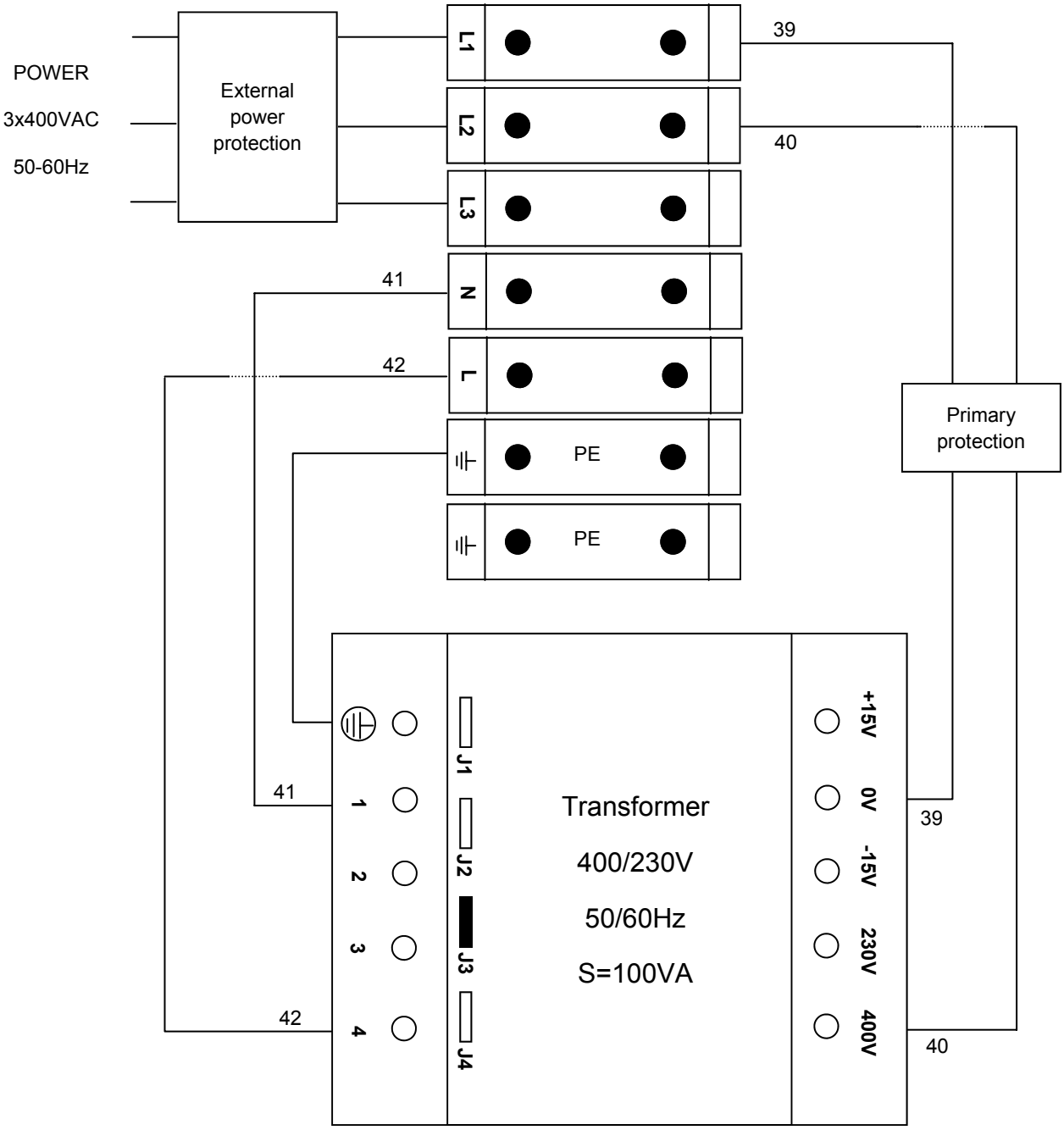


ALL WORKS CONCERNED WITH THE ELECTRICAL INSTALLATION MUST BE CARRIED OUT BY SKILLED AND QUALIFIED PERSONNEL.

(CONTINUED)

Humidifier without neutral fitted with a 400/230V transformer

The RTH 7 to 100 humidifiers are electrically supplied in 3x400v + G + N. In case a neutral line is not available, this can however be easily substitued by the use of our optional transfomer preventing the installation of a specific neutral line.

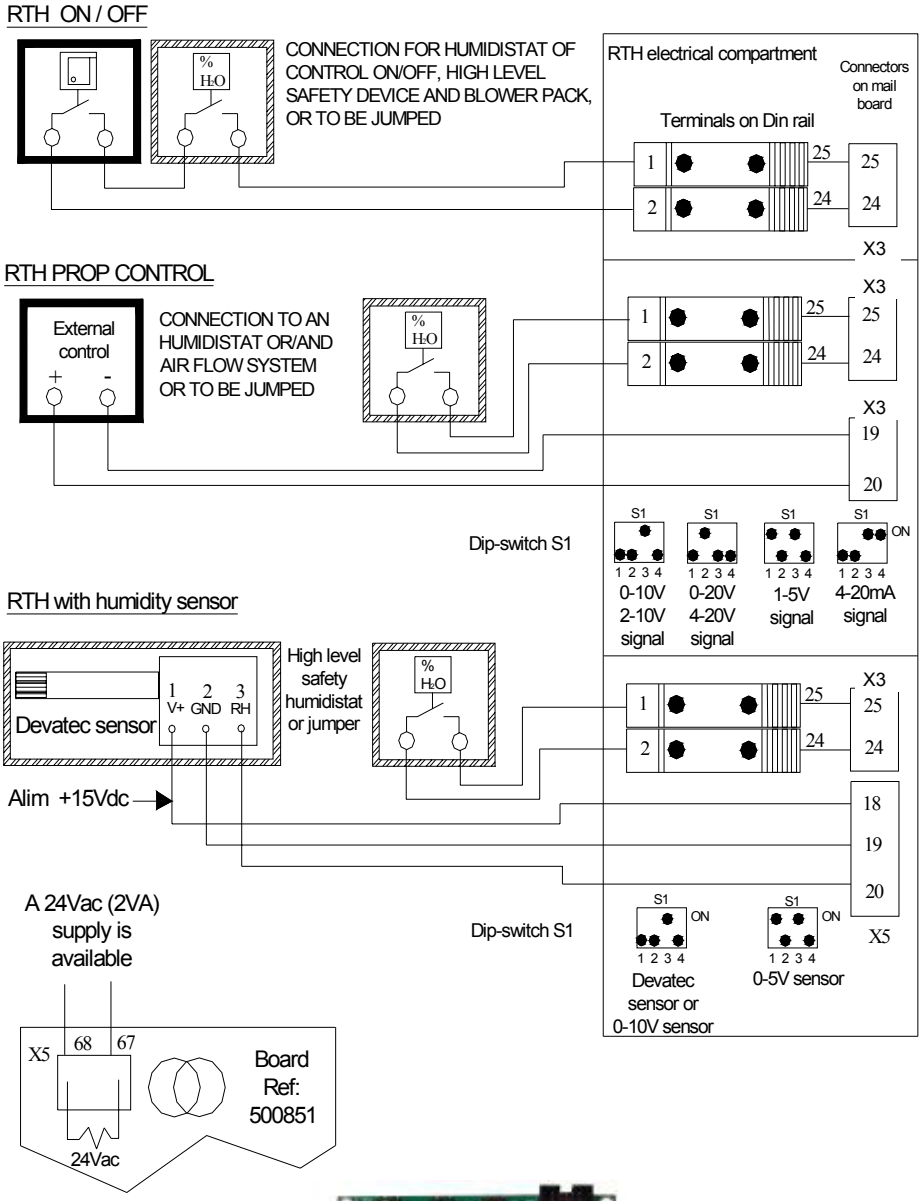


ALL WORKS CONCERNED WITH THE ELECTRICAL INSTALLATION MUST BE CARRIED OUT BY SKILLED AND QUALIFIED PERSONNEL.

ELECTROVAP RTH-V2

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.

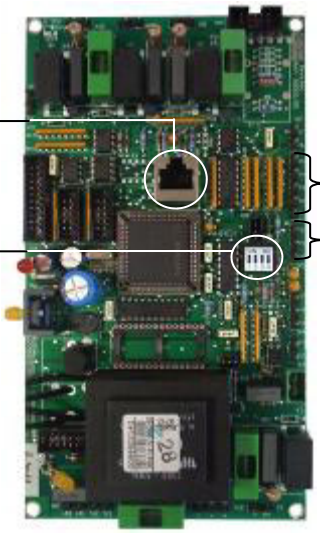


RTH external wiring

RJ45 connector : enables a computer connection

Dip Switch S1:

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



Equipment not supplied

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

Connector X5: 18-19-20

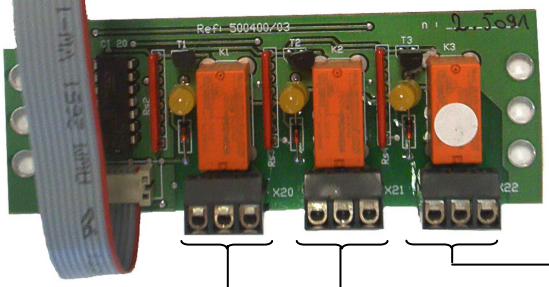
Main board Ref: 500101/05

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

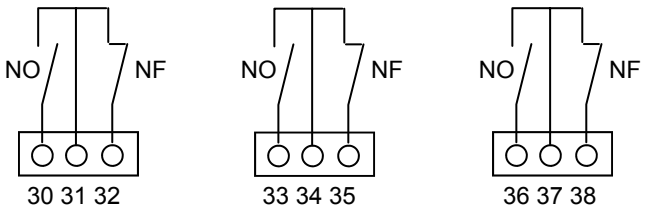
The wiring of the optional equipment described under must be made with 0.75 mm2 flexible cable.

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).

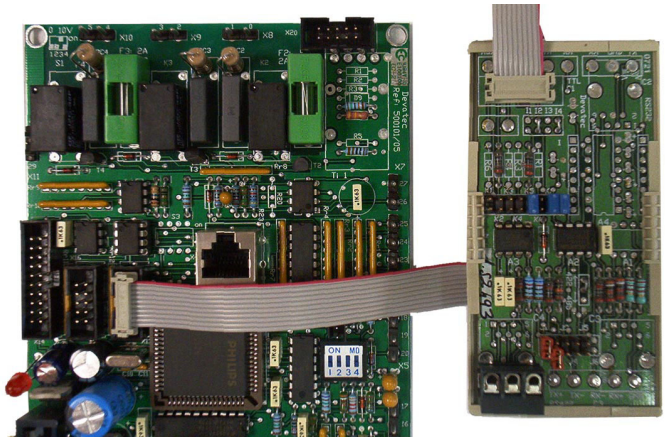


X22 connector (36-37-38): Remote steam production dry contact.

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)



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)

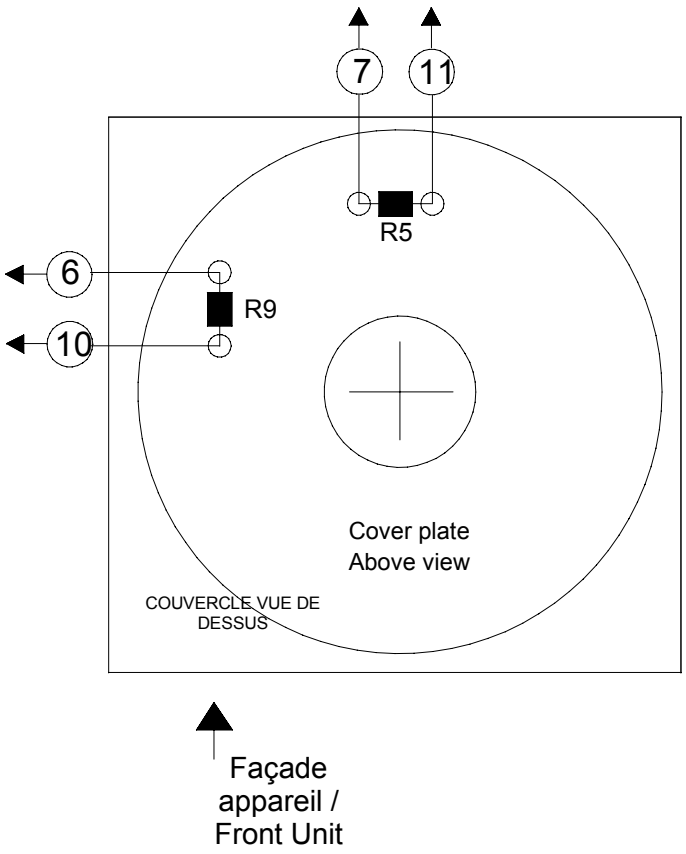
Protocol : JBUS or MODBUS (asynchronous of 8 bit data, no parity bit, 1 bit stop, CRC)
Speed data : 1200, 2400, 4800, 9600 bauds

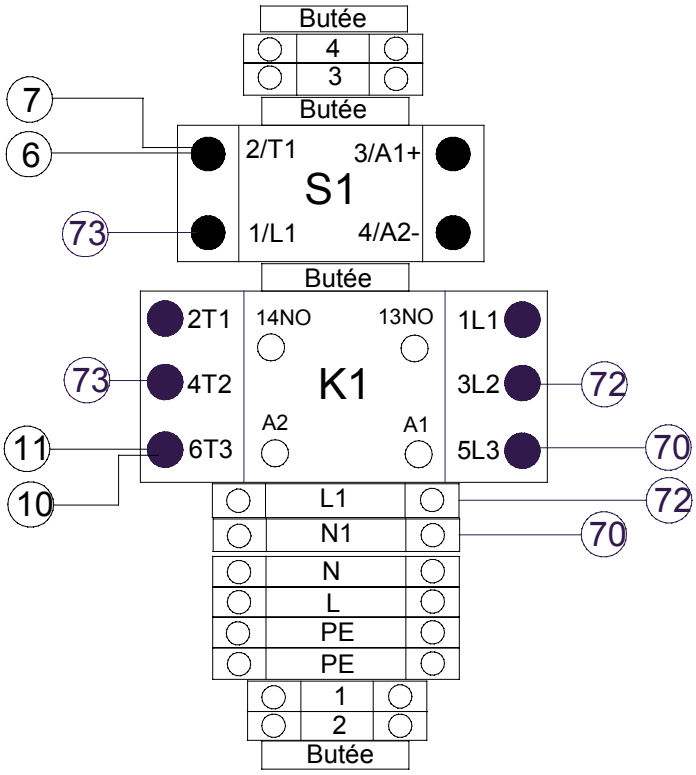
Mounting : on the DIN rail
Size : 95 x 50 mm

Main board Réf: 500800/01

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

RTH 5 & 8 STEAM HUMIDIFIERS in 1x 230V

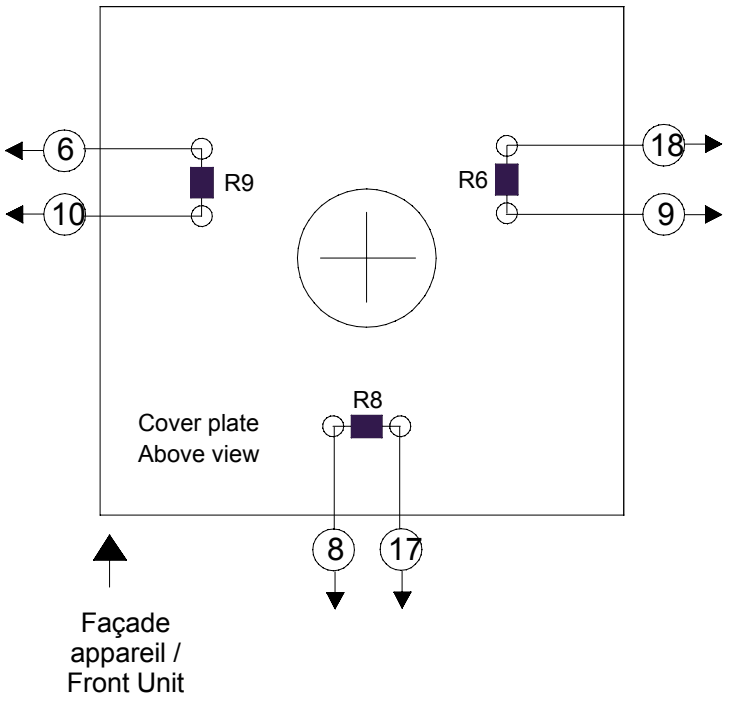


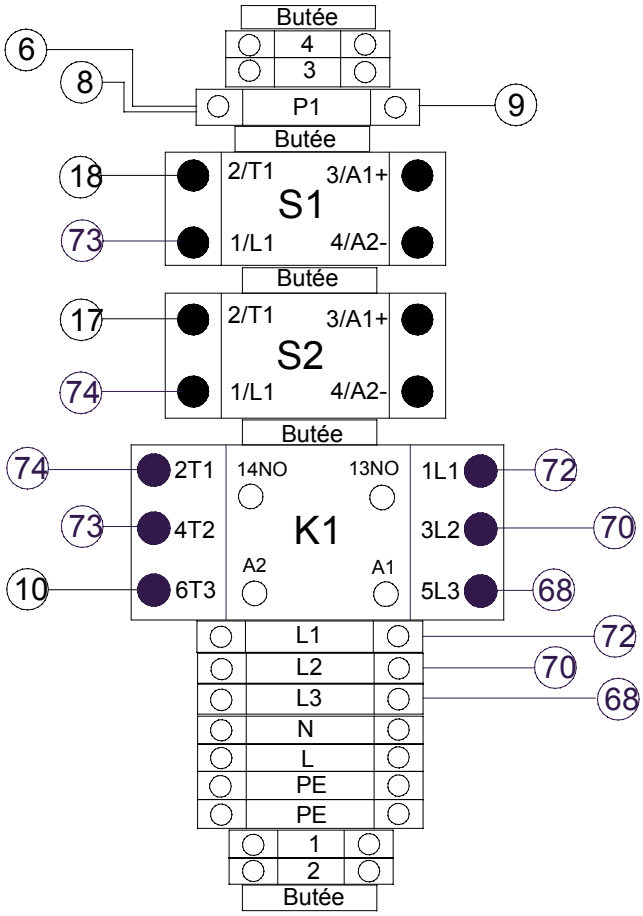


RTH	R5	R9
5	4,3KW-230V	
8	4,3KW-230V	1,9KW-230V

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

RTH 5 to 15 STEAM HUMIDIFIER in 3 x 380 - 400V - 415V

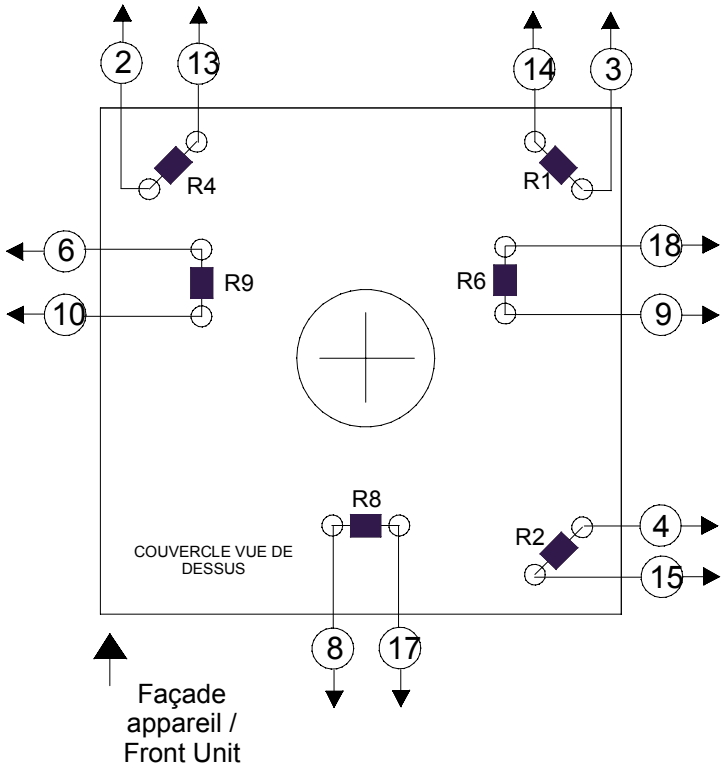


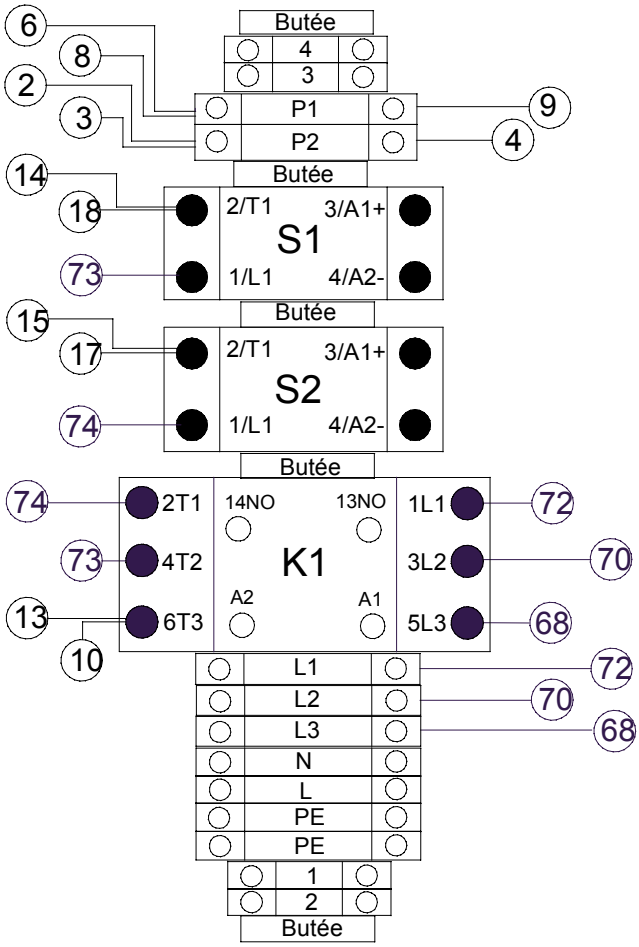


RTH	R6	R8	R9
5/3	1,9KW-277V	1,9KW-277V	1,9KW-277V
7	1,9KW-230V	1,9KW-230V	1,9KW-230V
10	4,3KW-277V	4,3KW-277V	4,3KW-277V
15	4,3KW-230V	4,3KW-230V	4,3KW-230V

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

RTH 20 & 30 STEAM HUMIDIFIERS in 3 x 380 - 400V - 415V

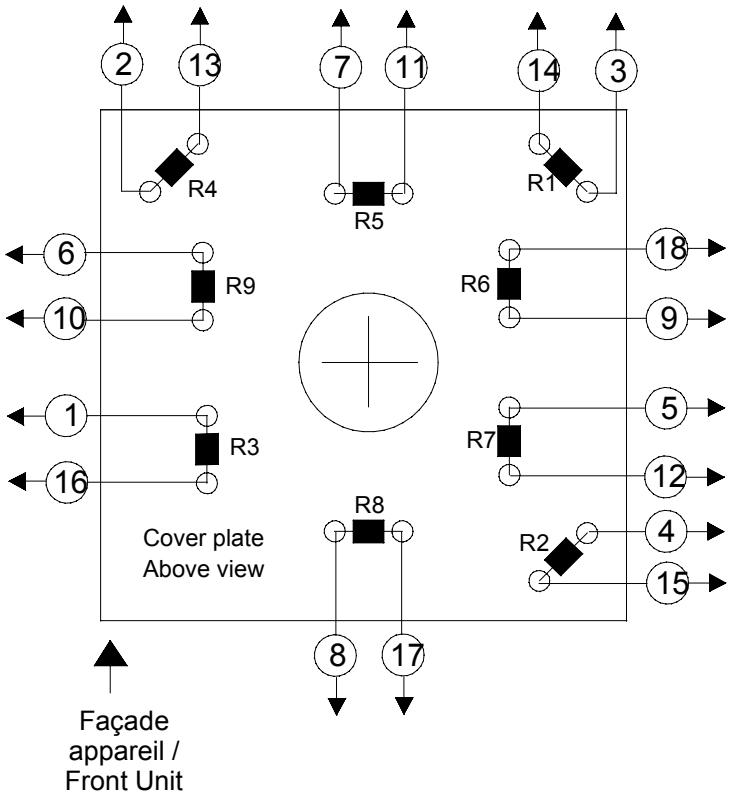


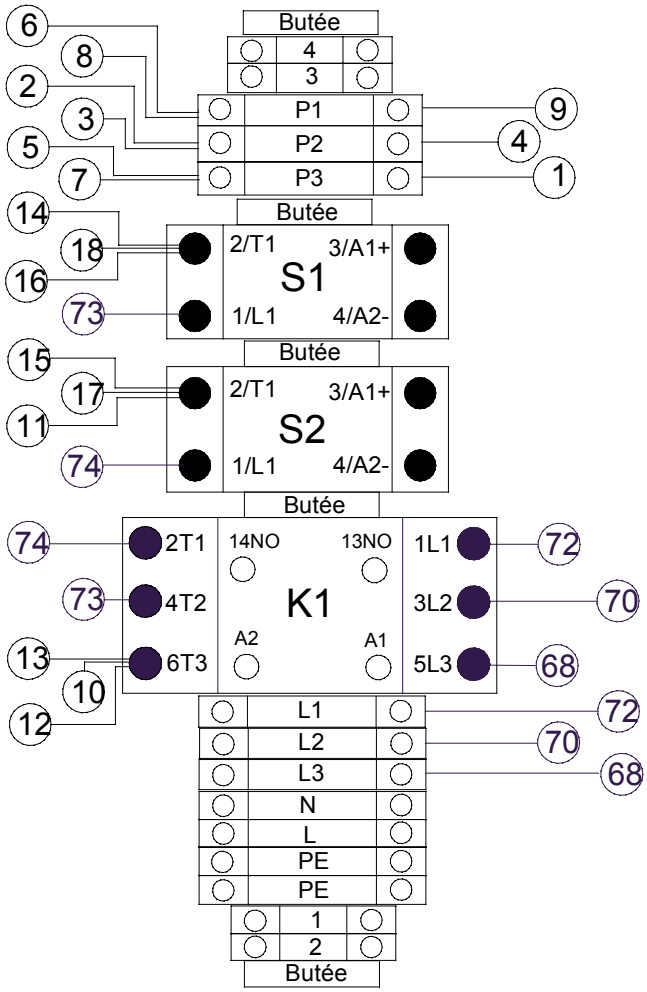


RTH	R1	R2	R4	R6	R8	R9
20	4,3KW-277V	4,3KW-277V	4,3KW-277V	4,3KW-277V	4,3KW-277V	4,3KW-277V
30	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-277V	4,3KW-277V	4,3KW-277V

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

RTH 40 STEAM HUMIDIFIER in 3 x 380 - 400V - 415V

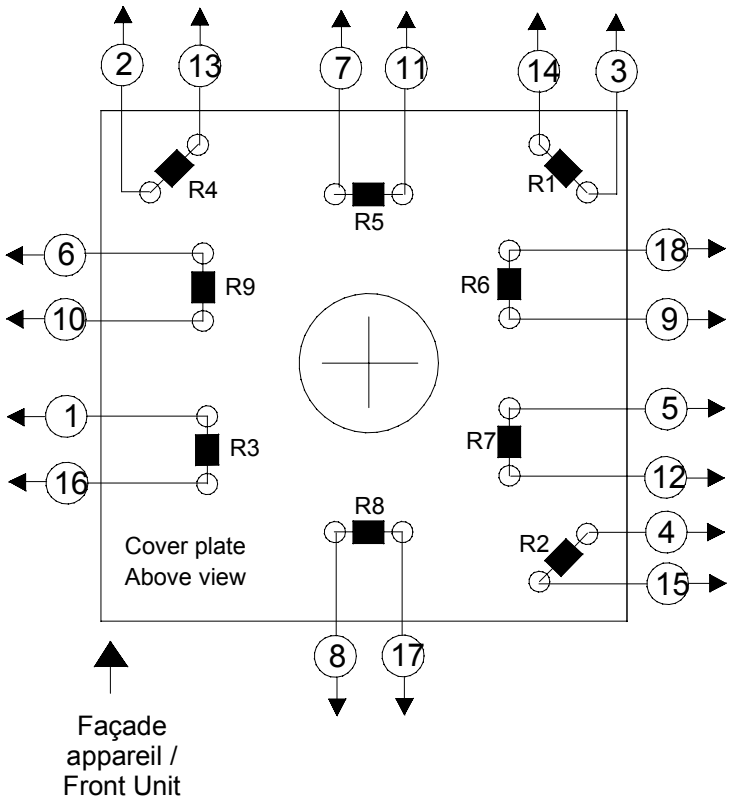


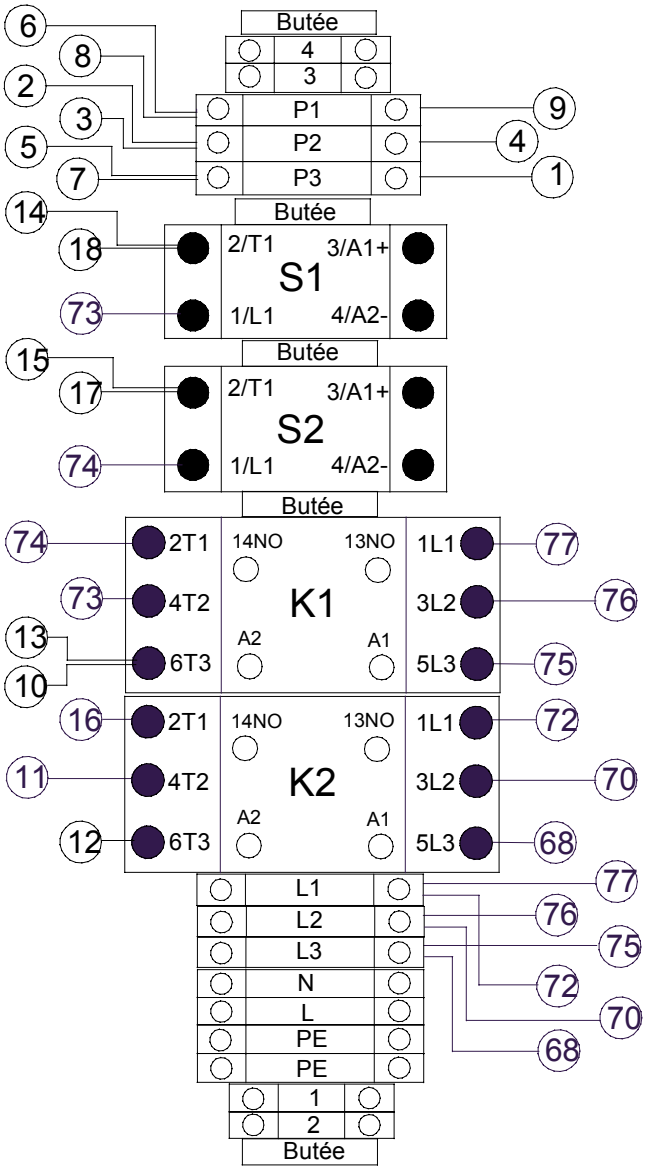


RTH	R1	R2	R3	R4	R5	R6	R7	R8	R9
40	4,3KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	4,3KW-230V

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

RTH 50 STEAM HUMIDIFIER in 3 x 380 - 400V - 415V

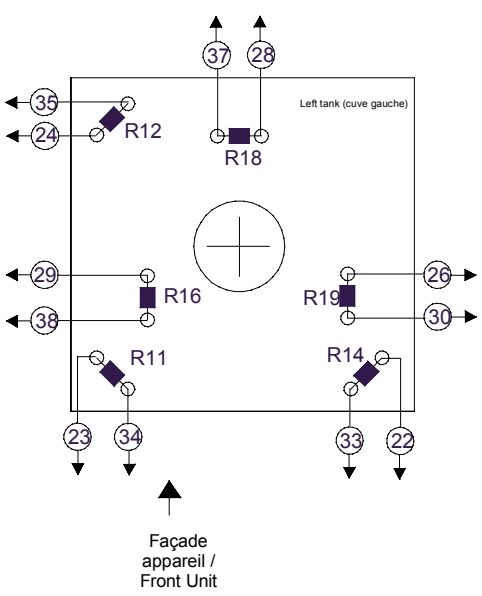


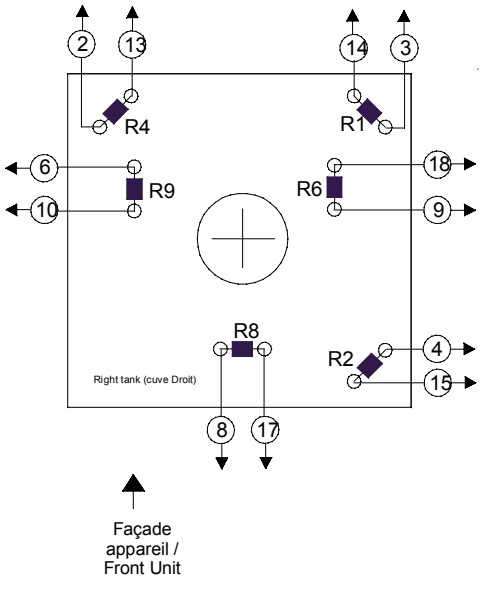


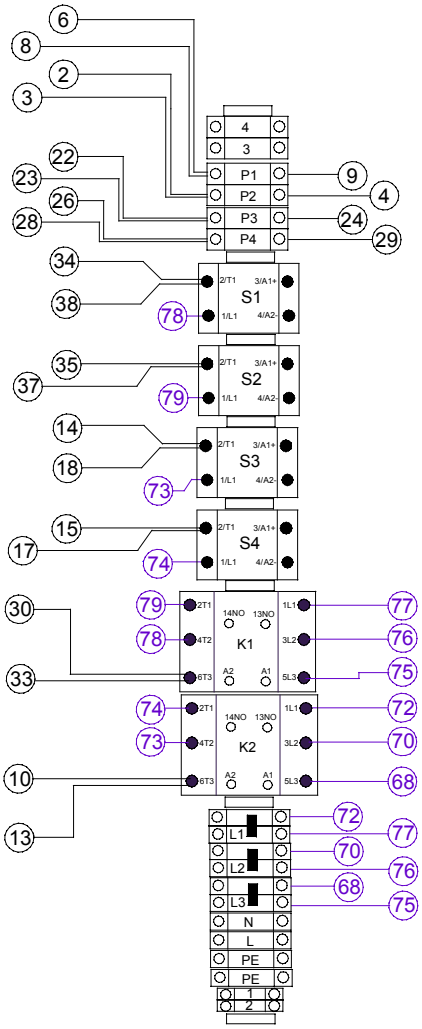
RTH	R1	R2	R3	R4	R5	R6	R7	R8	R9
50	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V

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

RTH 60 & 70 STEAM HUMIDIFIERS in 3 x 380 - 400V - 415V



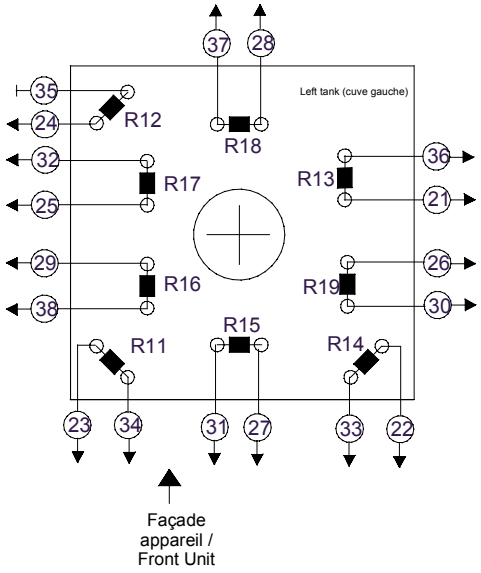


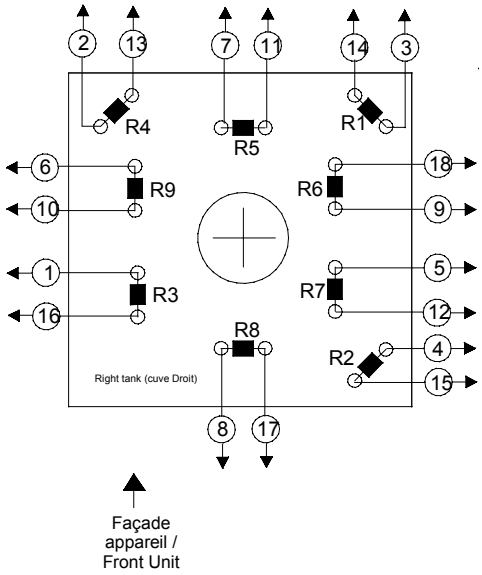


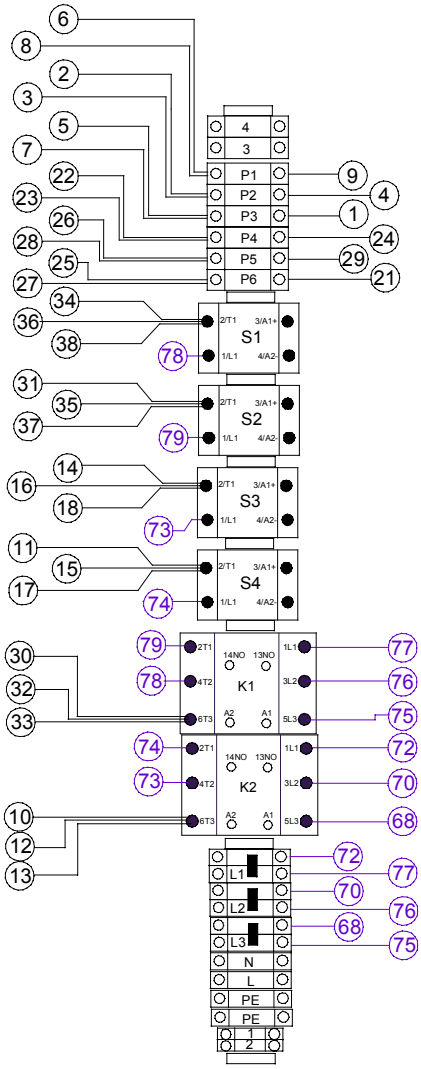
RTH	R1	R2	R4	R6	R8	R9	R11	R12	R14	R16	R18	R19
60	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-277V	4,3KW-277V	4,3KW-277V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-277V	4,3KW-277V	4,3KW-277V
70	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V

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

RTH 80 STEAM HUMIDIFIER in 3 x 380 - 400V - 415V



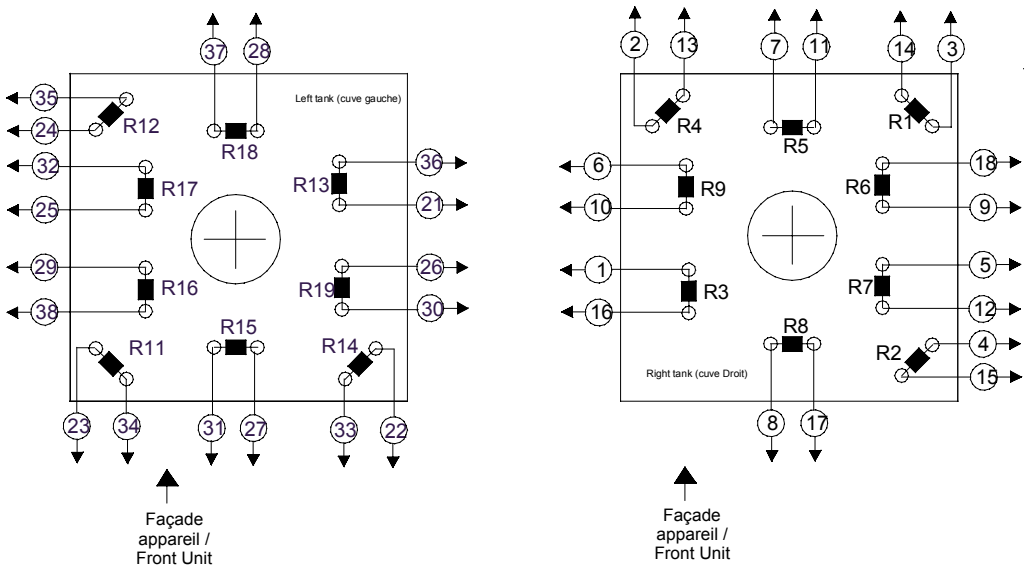


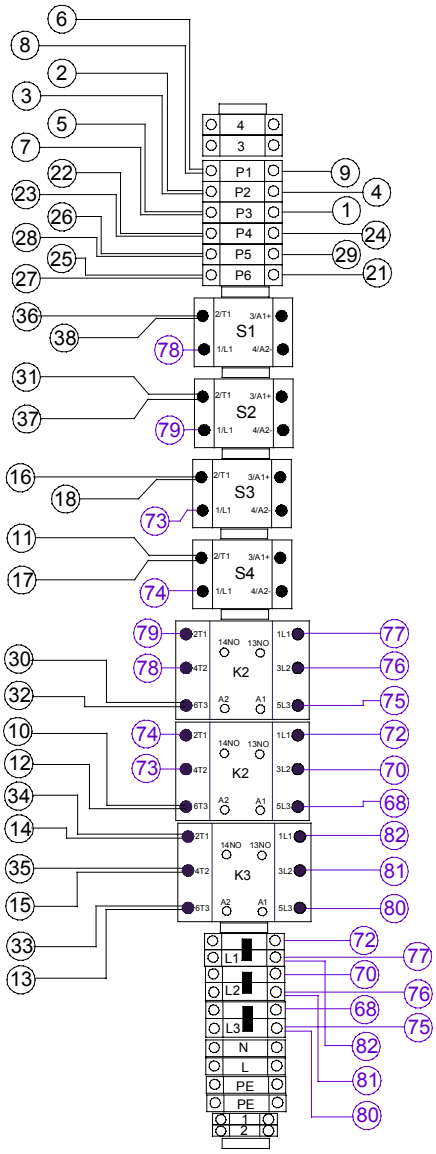


RTH	R1	R2	R3	R4	R5	R6	R7	R8	R9
80	4,3KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	4,3KW-230V
	R11	R12	R13	R14	R15	R16	R17	R18	R19
	4,3KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	4,3KW-230V

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

RTH 90 & 100 STEAM HUMIDIFIERS in 3 x 380 - 400V- 415V

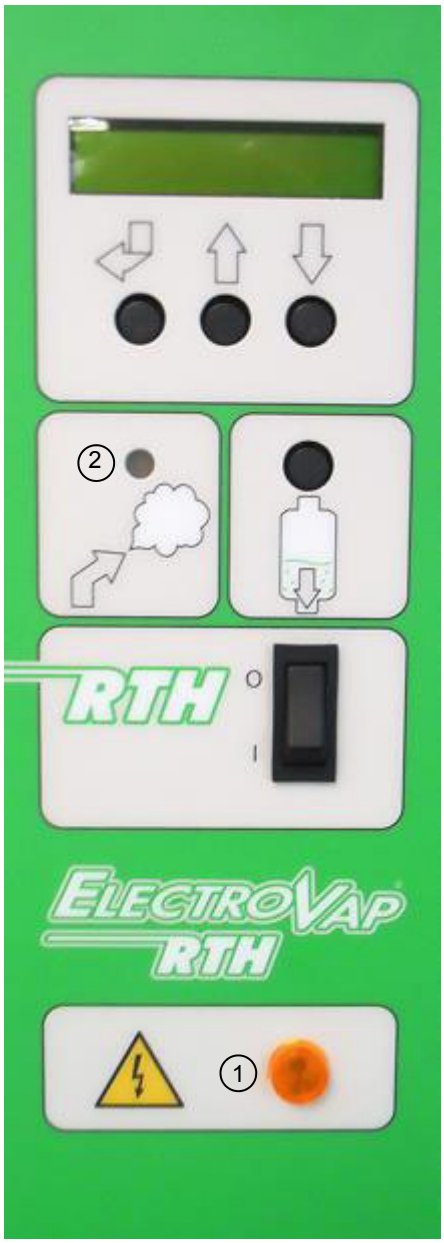




RTH	R1	R2	R3	R4	R5	R6	R7	R8	R9
90	4,3KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	4,3KW-230V
	R11	R12	R13	R14	R15	R16	R17	R18	R19
	4,3KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	1,9KW-230V	4,3KW-230V	4,3KW-230V
100	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V
	R11	R12	R13	R14	R15	R16	R17	R18	R19
	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V	4,3KW-230V

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

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.

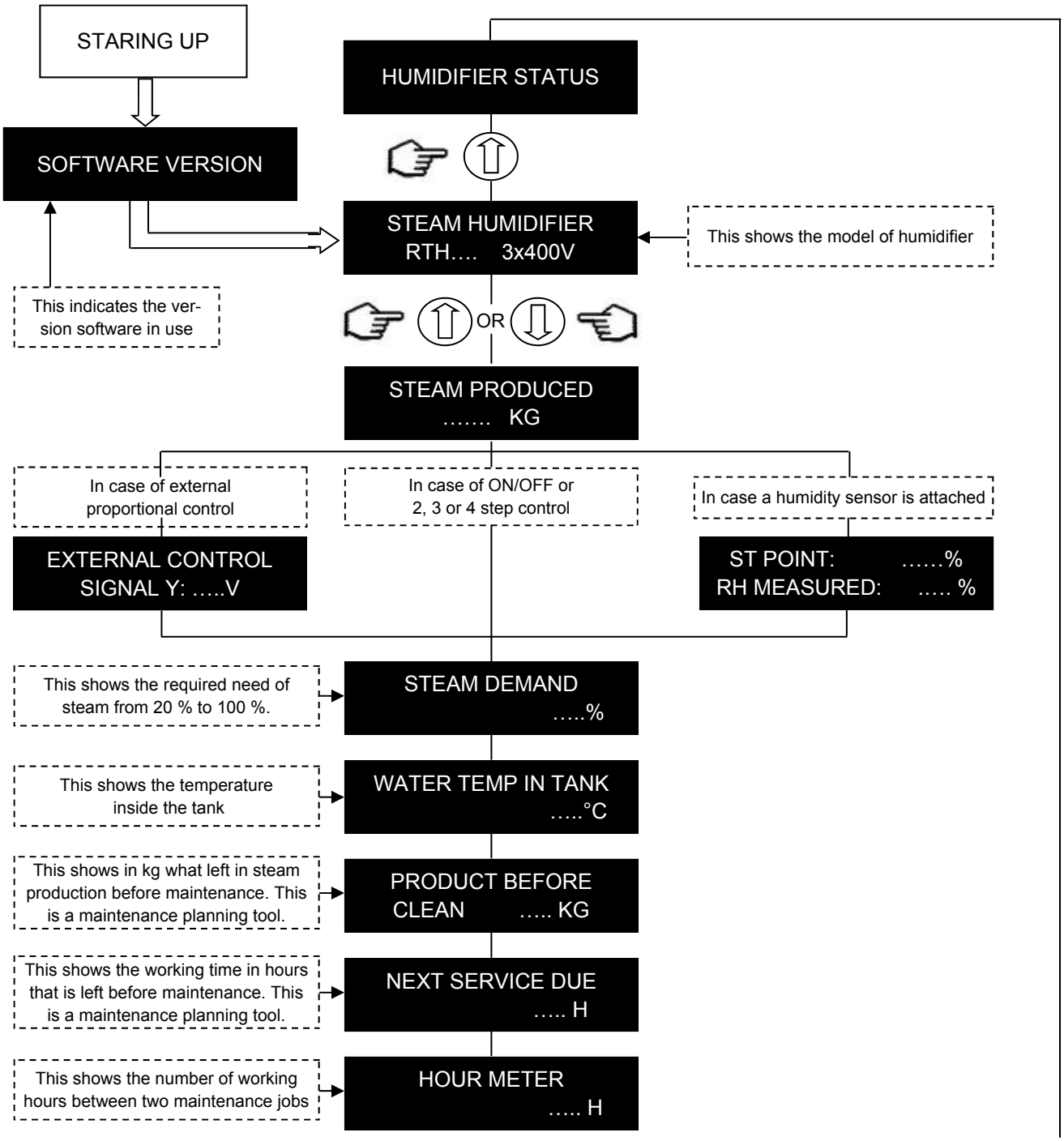
2 Enter the derised menu by pressing the up ⇧ or down ⇩ button.

- As soon as the humidifier is prompted by the regulator, the humidity 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)

- 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.

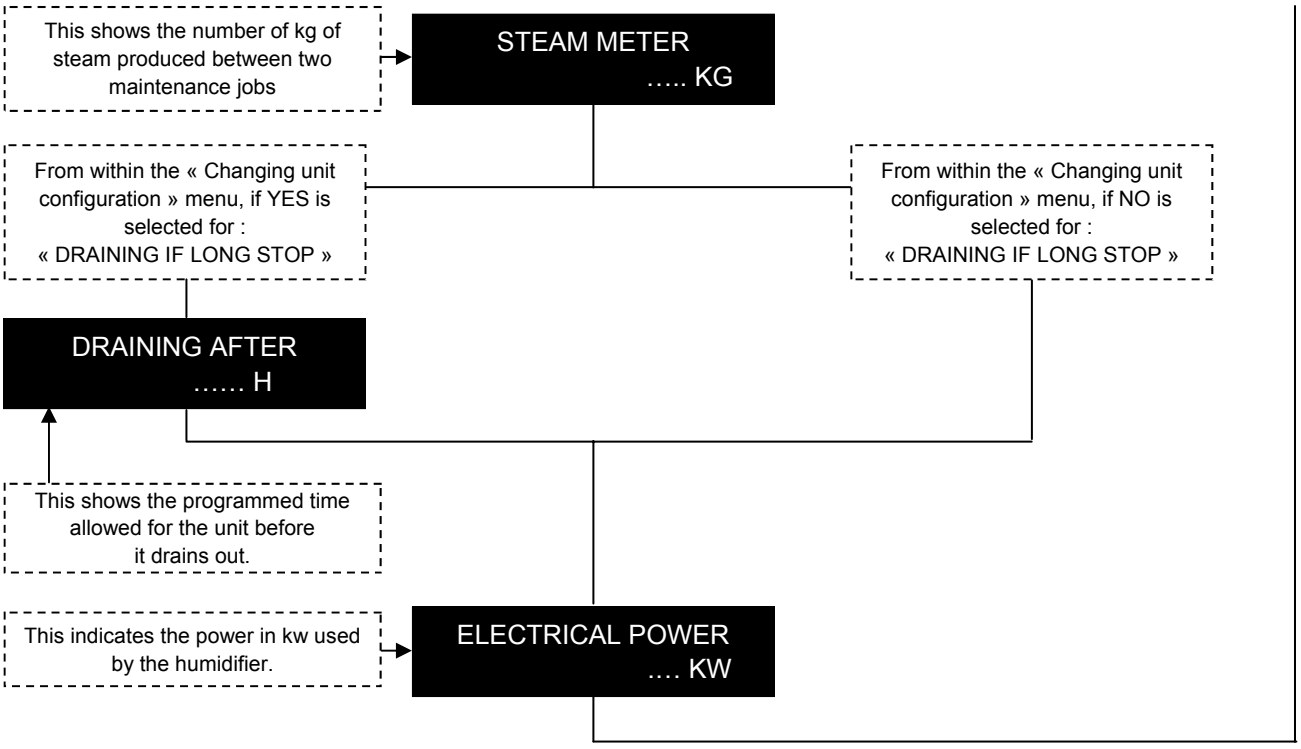
ATTENTION

- 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.



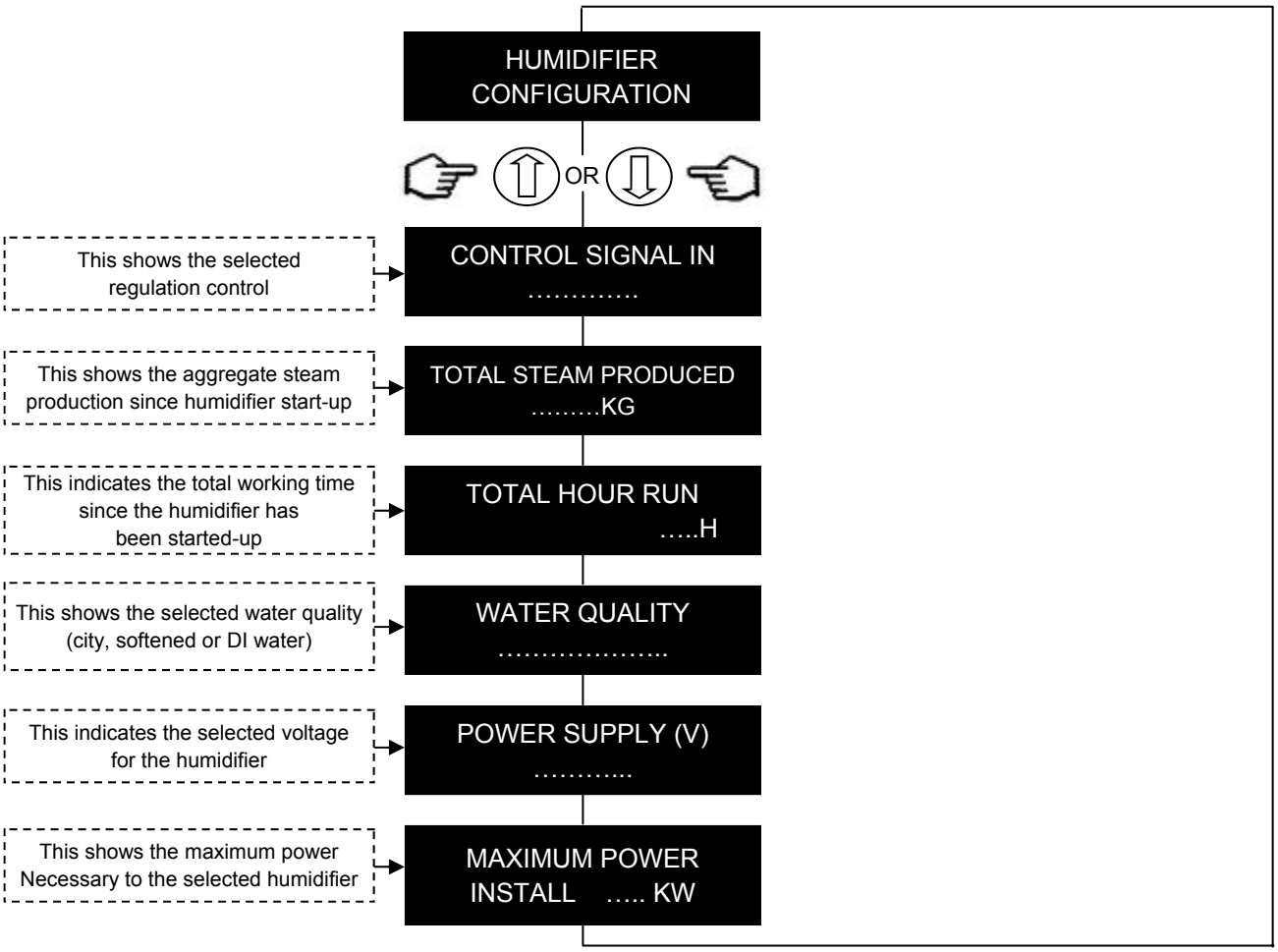
(CONTINUED)

- Press the ⏎ key for changing menu at any time.



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.



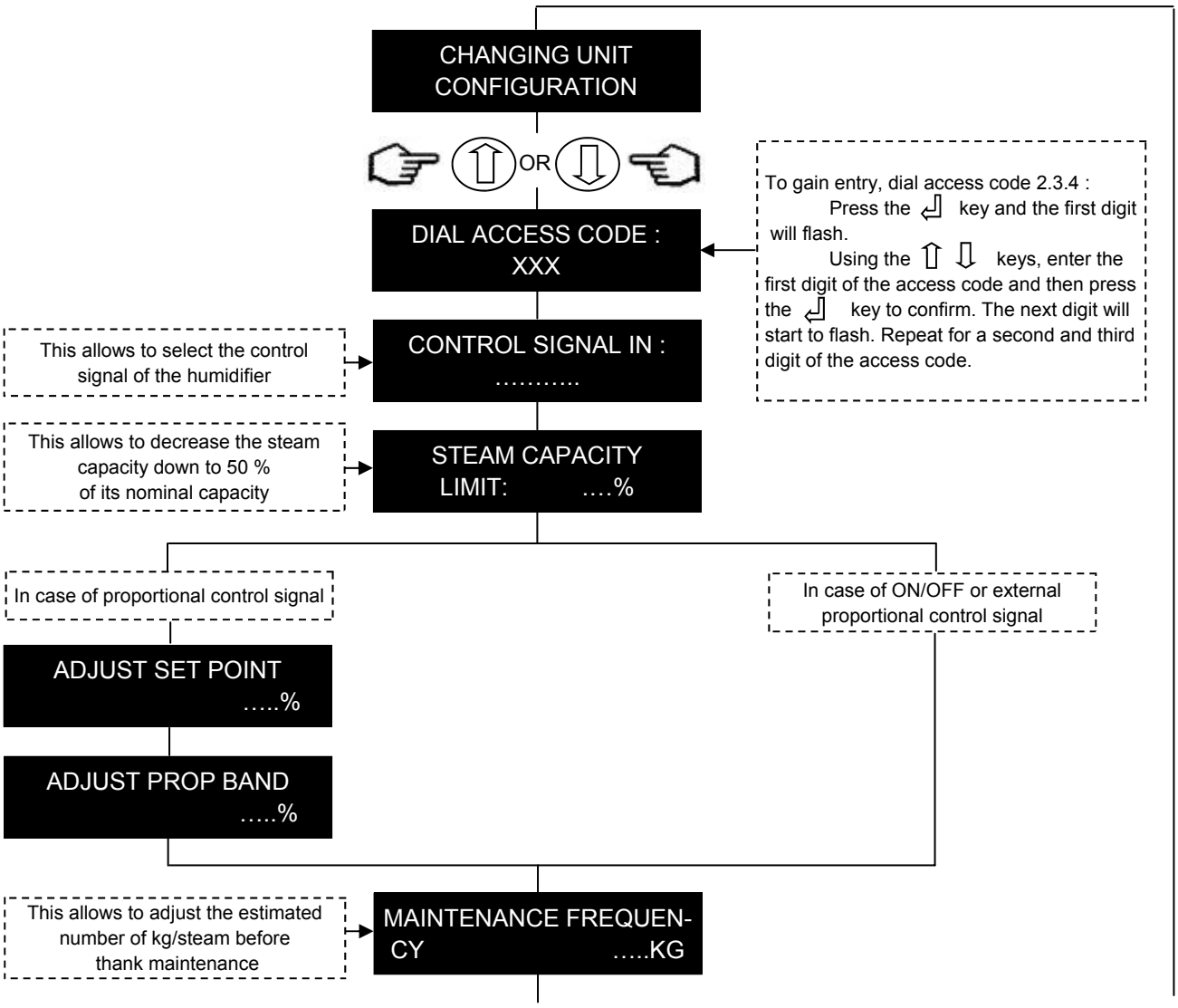
How to change the operating parameters /

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



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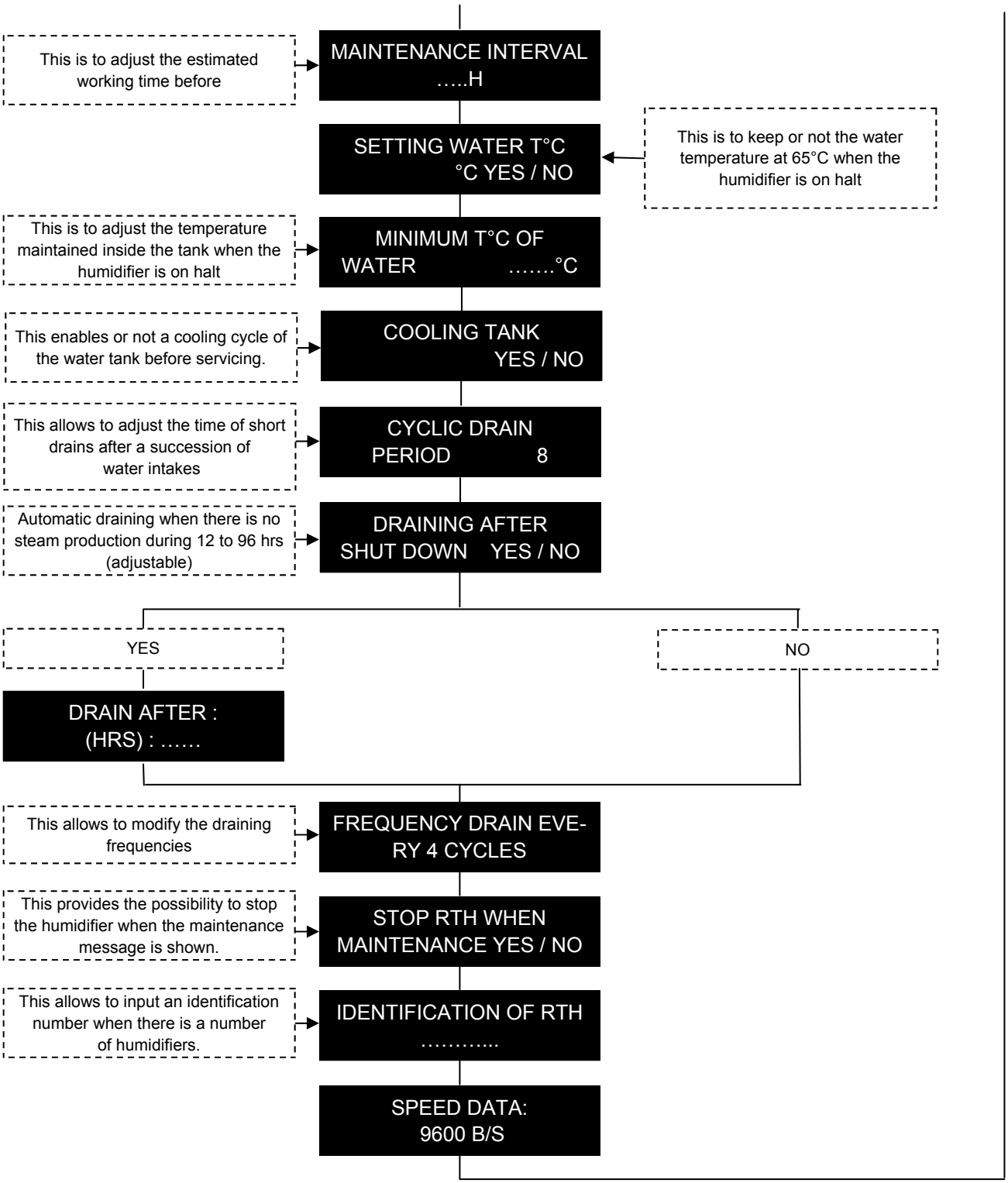

This is to adjust the estimated working time before
MAINTENANCE INTERVAL …..H
SETTING WATER T°C °C YES / NO
This is to keep or not the water temperature at 65°C when the humidifier is on halt
This is to adjust the temperature maintained inside the tank when the humidifier is on halt
MINIMUM T°C OF WATER …….°C
This enables or not a cooling cycle of the water tank before servicing.
COOLING TANK YES / NO
This allows to adjust the time of short drains after a succession of water intakes
CYCLIC DRAIN PERIOD 8
Automatic draining when there is no steam production during 12 to 96 hrs (adjustable)
DRAINING AFTER SHUT DOWN YES / NO
YES
NO
DRAIN AFTER : (HRS) : ……
This allows to modify the draining frequencies
FREQUENCY DRAIN EVE-RY 4 CYCLES
This provides the possibility to stop the humidifier when the maintenance message is shown.
STOP RTH WHEN MAINTENANCE YES / NO
This allows to input an identification number when there is a number of humidifiers.
IDENTIFICATION OF RTH ……..
SPEED DATA: 9600 B/S

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.
- Switch the humidifier on again.

} Please revert to the « maintenance » section of this manual

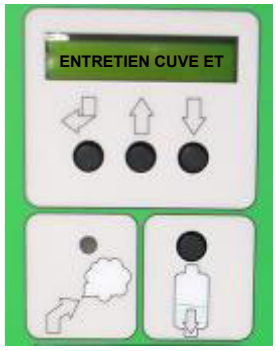
Maintenance warning

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.



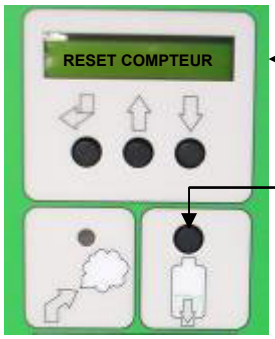
RTH humidifier with software version V01_07, V02_08, V03_08 et V04_08 :

- Press first on  then press on 

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 30-31).



The display reads :

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

RTH 5 to 50

Picture n°1

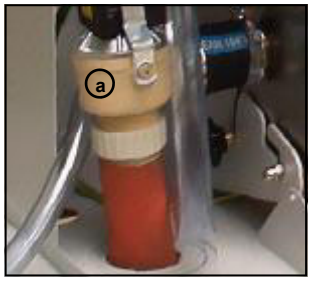
- Drain the tank out by pressing the manual drain button (s.a. picture n°1). Wait for complete draining and allow the tank to cool down (if this feature has been enabled).

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

Picture n°2

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

Picture n°3



- Unscrew the right hand side black knob. Remove the drain hose (s.a. picture n°3).

Picture n°4

- Swing the tank to intermediate position (s.a. picture n°4).

Picture n°5

- Unlock the 4 locks of the tank (s.a. picture n° 5).
- Take off the water level tank cap (s.a. picture n°6).

CAUTION : do not use any solvent to clean the water level tank. If the sensor needs being maintained, do not use special glues but use teflon material.

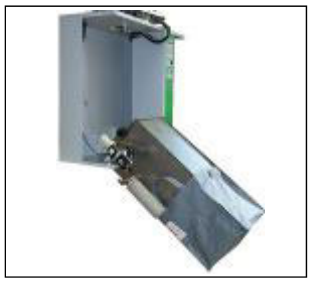
Picture n°6

(continued)

Picture n°7

Picture n°8

Picture n°9



Picture n°10

Picture n°11

Picture n°12

- Lift the tank lid (mind the positioning marks) and lay it upside down on the top of the humidifier (s.a. picture n°7). Remove the high water tank and lay it on the top of the humidifier.

- Set the calcius collecting bag on the tank rim and hook the handles to the tank lateral hooks (s.a. picture n°8).

- Release the tank holding steel cord and swing down the tank : the calcius deposit falls into the flexible container. This is a tidy operation for both the maintenance personnel and the operational room (s.a. picture n°9).

- Remove the flexible bag and swing the tank back to intermediate position. Fasten the holding steel cord to the tank.

TAKE CARE : the tank gasket should be changed whenever the tank is maintained (picture n°10.1). Make also sure that the collar clamps are still ok.

IMPORTANT : make sure that the flutted tee that fits the bottom of the tank has not been pulled down with the calcius deposit. Otherwise, pick it up from the collecting bag and reinstall it (s.a. picture n°10).

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

Put back the tank lid onto the tank body taking care to align the positioning marks. Wipe the 4 high water level electrodes and put back the high water level electrode assy. Swing the tank up (s.a. picture n°11).

Tighten up the black knob and reconnect the drain and steam hoses.

- The humidifier is now ready again (s.a. picture n° 12).

RTH 60 to 100

Picture n°13

- Drain both tanks by pressing the drain button (s.a. picture n°13) and wait for their complete draining and cooling (if this option has been enabled).

- Cut the mains off (from the general power switchboard) and switch off the humidifier (s.a. picture n°13).

Picture n°14

- Remove the door, disconnect the steam hoses (s.a. picture n°14-a) and put them off the humidifier.
- Untighten clamp c (s.a. picture n°17) and disconnect the water hose.
- Disconnect the pressure level hose and uncap the water level tank (s.a. picture n° 15).

Picture n°15

<u>CAUTION</u> : do not use any solvent to clean the water level tank. If the sensor needs being maintained, do not use special glues but use teflon material.

Picture n°16

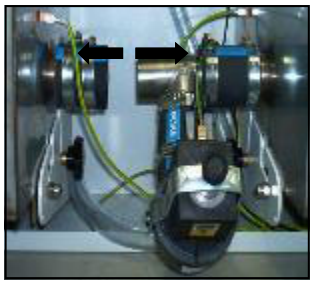
- Uncrew the union jonction (s.a. picture n° 16-c) to disconnect the drain hose.

Picture n°17

- Release the collar clamp b, c and d (s.a. picture n°17).

(continued)

Picture n°18



- Make the drain valve assy slide on the right and the other drain hose butt end to the left (s.a. picture n°18).

Picture n°19

- Plug off the drain valve electrical supply wires and take off the drain valve assy (s.a. picture n°19).

Picture n°20

- Swing the tank down to intermediate position (s.a. picture n°20).

Picture n°21

- Unlock the 4 locks of the tank (s.a. picture n°21).
- Lift the tank lid (mind the positioning marks) and lay it upside down on the top of the humidifier (s.a. picture n°22).

Picture n°22

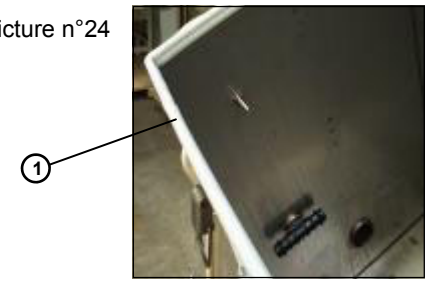
- Adjust the collecting container on the tank rim and fasten the handles to the lateral tank hooks.
- Release the tank holding steel cord and swing down the tank : the calcius deposit falls into the flexible bag. This is a tidy operation for both the maintenance personnel and the operational room.

Pictgure n°23

- Remove the flexible container and swing the tank back to its intermediate position. Fasten the holding steel cord to the tank.
- Grease the tank gasket with silicon grease.

(continued)

Picture n°24



Take off the collecting container and swing back the tank in intermediate position. Fasten the tank holding steel cord.

TAKE CARE : the tank gasket should be changed whenever the tank is maintained (picture n°24.1). Make also sure that the collar clamps are still ok.

IMPORTANT : make sure that the flutted tee that fits the bottom of the tank has not been pulled down with the calcius deposit. Otherwise, pick it up from the collecting bag and reinstall it (s.a. picture n°24).

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

Picture n°25

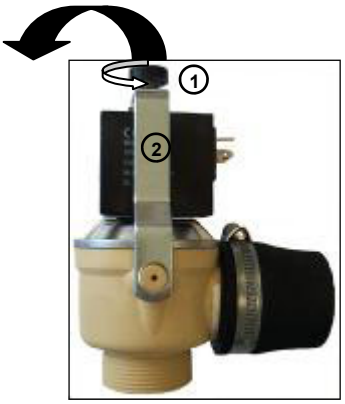
- Process the same way for the second tank.
- Put back the tank lid onto the tank body taking care to align the positioning mark. Wipe the 4 high water level electrodes and put the high water level electrode assy back. Do not forget to reconnect the pressure level hose. Swing the tank up (s.a. picture n°25).

- Reassemble the drain valve assy in its original position and retighten the 4 collar clamps.

Picture n°26

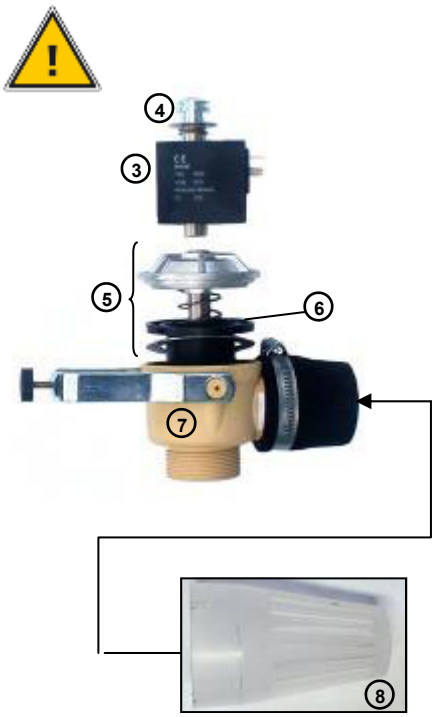
- **Tighten up the black knob, reconnect the drain and steam hoses and hang back the doors.**
- The humidifier is now ready (s.a. picture n°26).

Drain valve maintenance

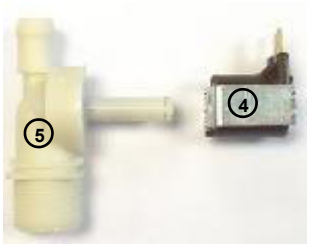


To be made a each tank maintenance :

- Remove screw 1 then swing coil holder 2 on the left.
- Remove coil 3 from the actuator assembly 4 (don't miss the small parts).
- Dismount assembly 5, clean valve 6 and rinse body 7.
- Flush with water filter 8.
- Reassemble all the parts
- Change parts if needed.
- Swing coil holder 2 back and screw up screw 1



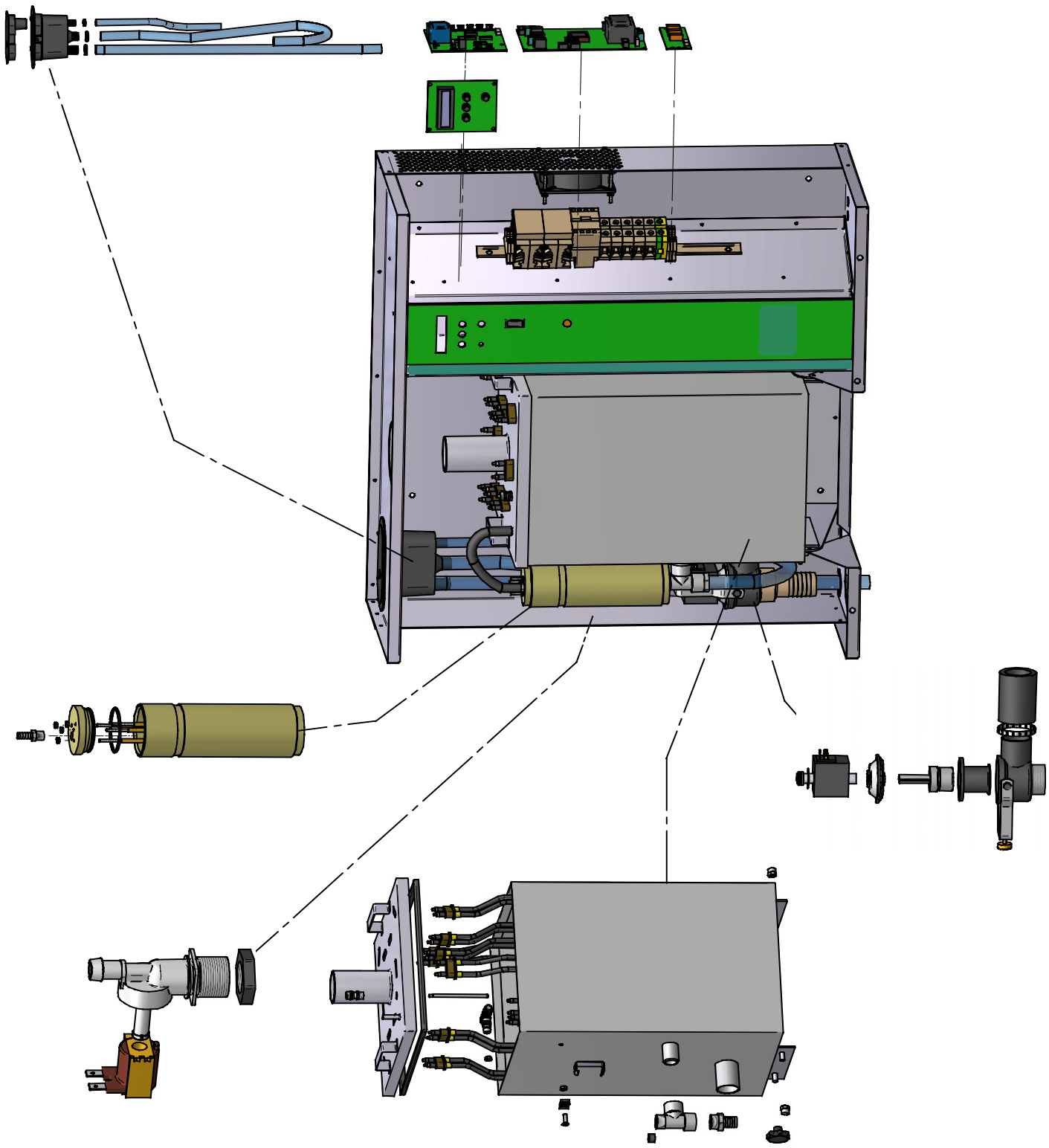
Inlet valve maintenance



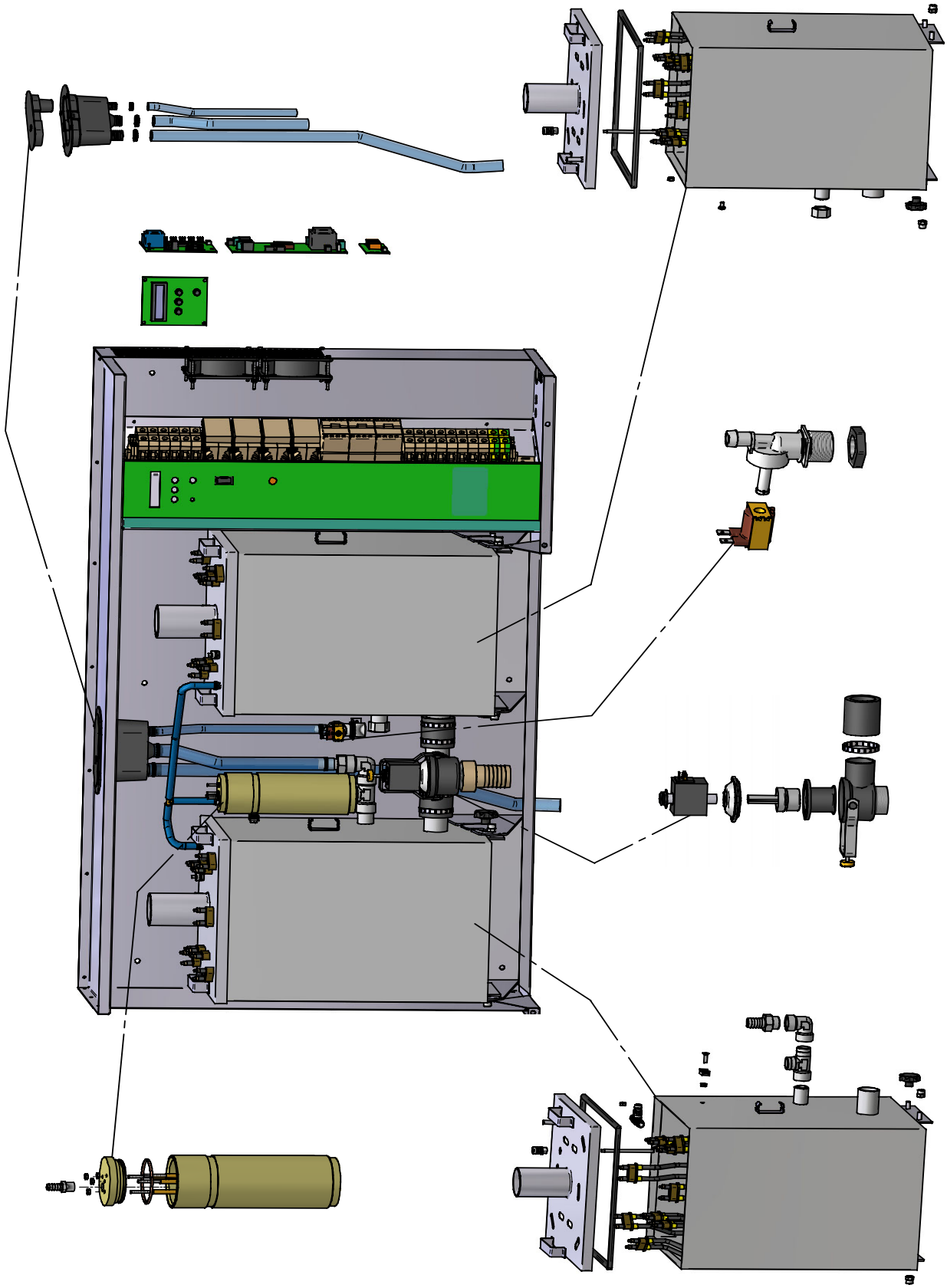
Turn the water supply off and switch the humidifier off.

- Remove water inlet hose 1 and screw 2.
- Take filter 3 out with a pair of pliers and flush it with clear water.
- Pull coil 4 out with the help of a small screwdriver.
- Flush the internal part of valve body 5 with clear water.
- Change parts if needed.
- Reassemble. Do not forget to inset 0 ring 6.

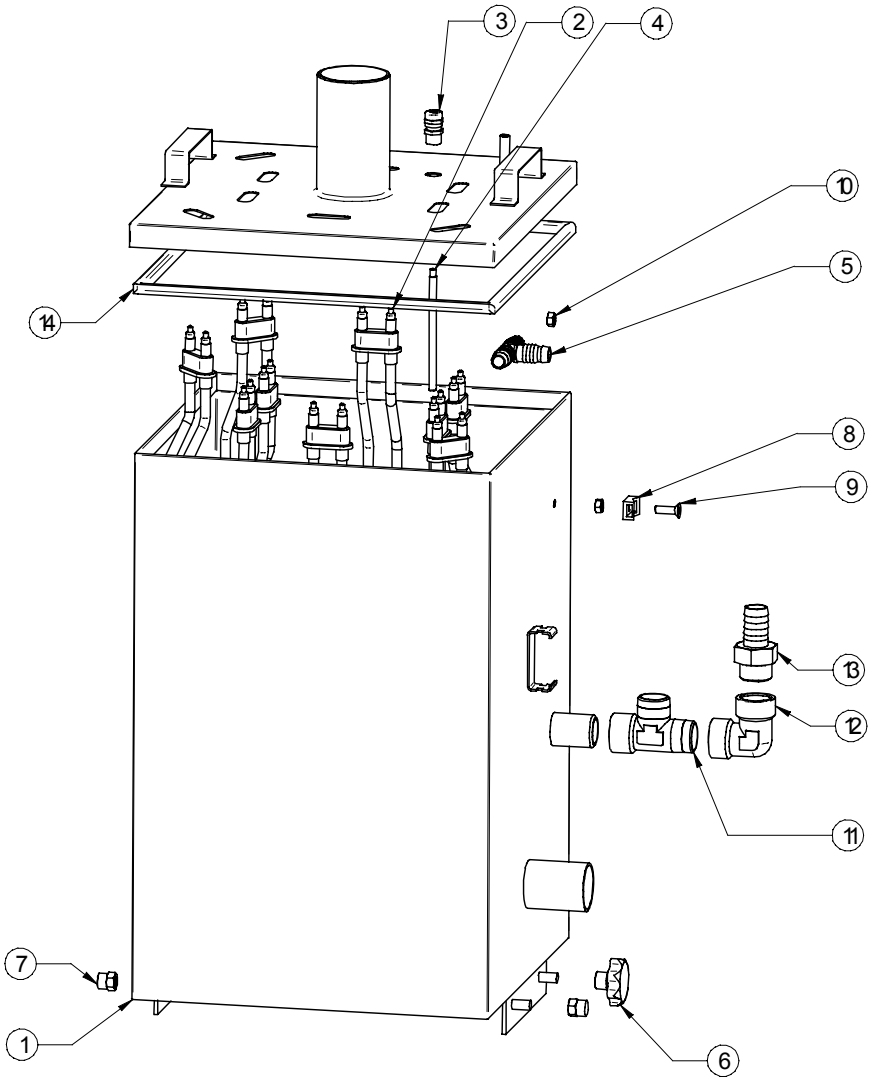
Overview : RTH-V2 5 to 50



Overview : RTH-V2 60 to 100

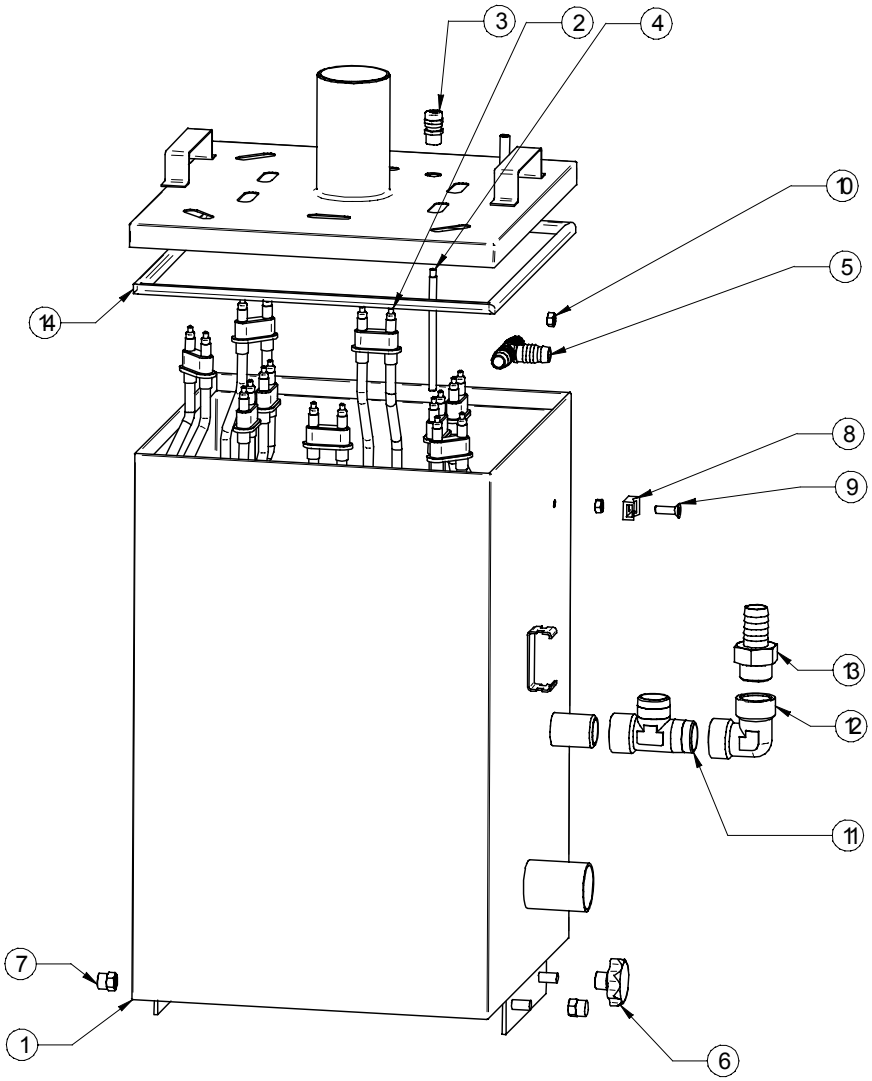


Stainless steel tank RTH-V2 5 to 50



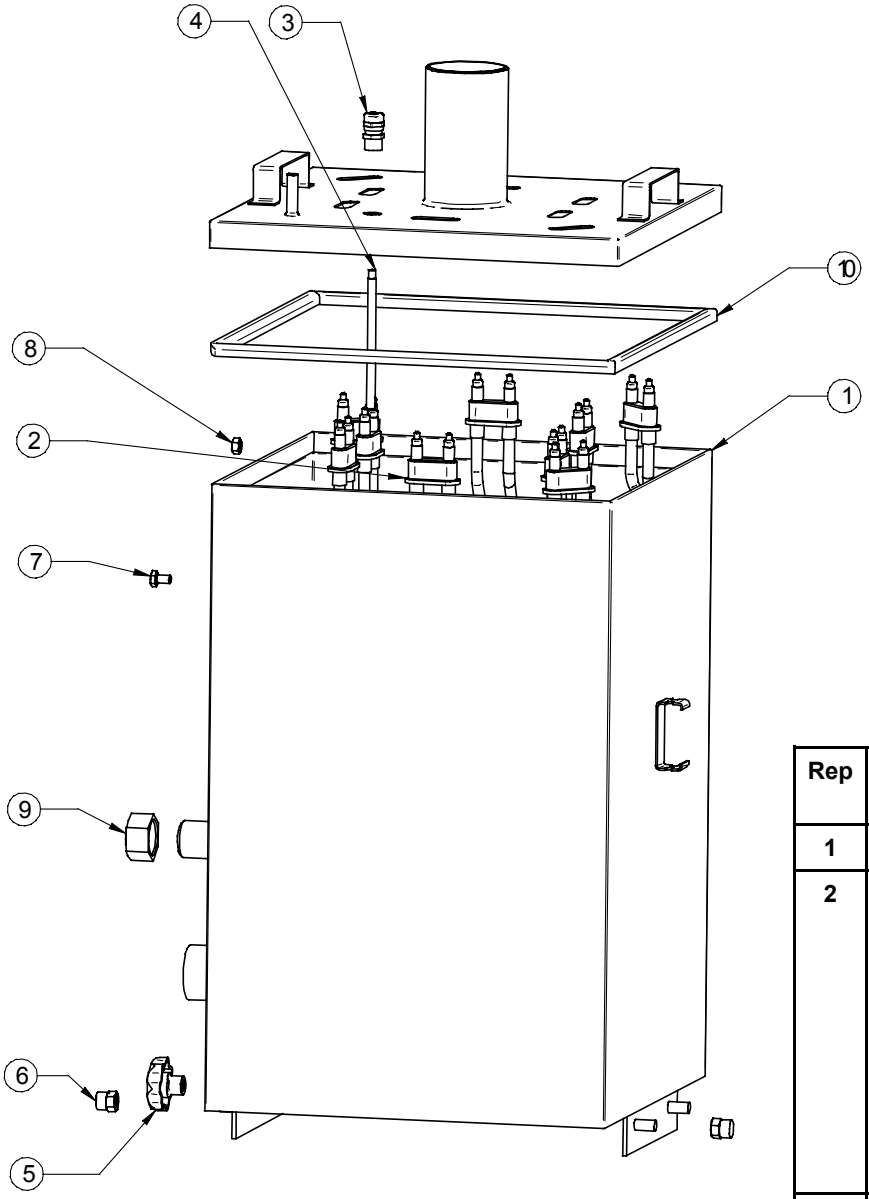
Rep	Part nb	Description
1	930525	Ø 8mm pressure level hose
2		Stainless steel tank + lid
3	930500	Heating element 1,9 kW (230V)
	930547	Heating element 1,9 kW (277V)
	930543	Heating element 1,9 kW (346V)
	930503	Heating element 4,3 kW (230V)
	930548	Heating element 4,3 kW (277V)
	930544	Heating element 4,3 kW (346V)
4	930505	Metal stuffing box PG7
5	930504	PT100 temperature sensor
6	930506	PVC black flutted tee
7		Knob M8
8		Sealed nut M8
9		Tightening clamp guide
10		Countersunk metal screw Ø6 L.20mm
11		Stainless steel nut Ø6mm
12		Te 3/4" MF
13		Flutted tip M3/4" hose Ø20mm
14	930507	Tank gasket

Stainless steel tank (left) RTH-V2 60 to 100



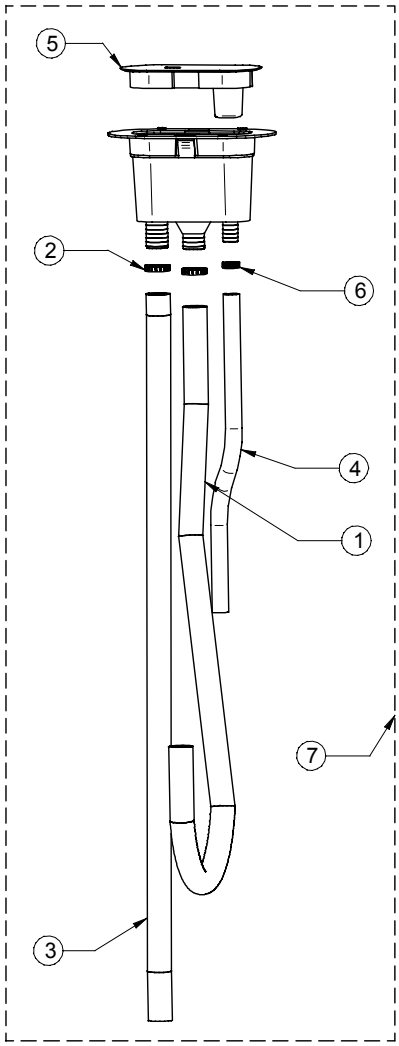
Rep	Part nb	Description
1	930525	Ø8mm pressure level hose
2		Chaudière inox + couvercle
3	930500	Heating element 1,9 kW (230V)
	930547	Heating element 1,9 kW (277V)
	930543	Heating element 1,9 kW (346V)
	930503	Heating element 4,3 kW (230V)
	930548	Heating element 4,3 kW (277V)
	930544	Heating element 4,3 kW (346V)
4	930505	Metal stuffing box PG7
5	930504	PT100 temperature sensor
6	930506	PVC black flutted tee
7		Knob M8
8		Sealed nut M8
9		Tightening clamp guide
10		Countersunk metal screw Ø6 L.20mm
11		Stainless steel nut Ø6mm
12		Te 3/4" MF
13		Flutted tip M3/4" hose Ø20mm
14	930507	Tank gasket

Stainless steel tank (right) RTH-V2 60 to 100



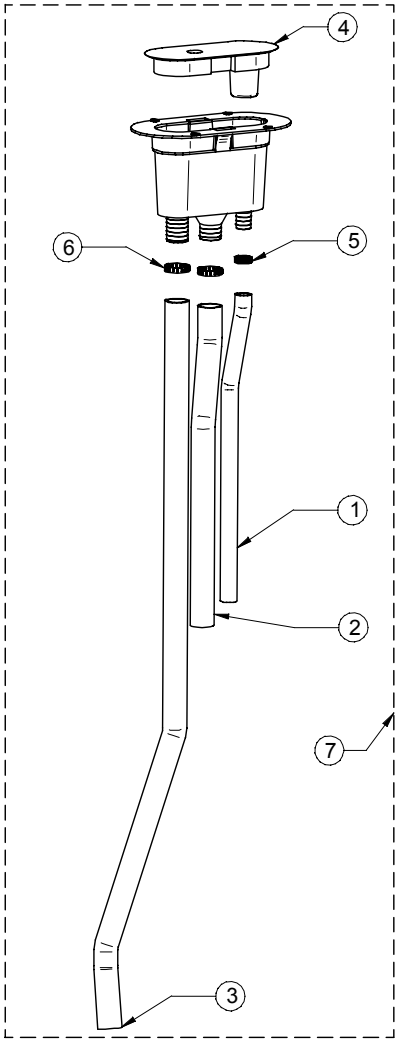
Rep	Part nb	Description
1		Stainless steel tank + lid
2	930500	Heating element 1,9 kW (230V)
	930547	Heating element 1,9 kW (277V)
	930543	Heating element 1,9 kW (346V)
	930503	Heating element 4,3 kW (230V)
	930548	Heating element 4,3 kW (277V)
	930544	Heating element 4,3 kW (346V)
3	930505	Metal stuffing box PG7
4	930504	PT100 temperature sensor
5		Knob M8
6		Sealed nut M8
7		Stainless steel screw Ø6 Lg10mm
8		Stainless steel nut Ø6mm
9		Cap 3/4" F
10	930507	Tank gasket

Filling cup RTH-V2 5 to 50



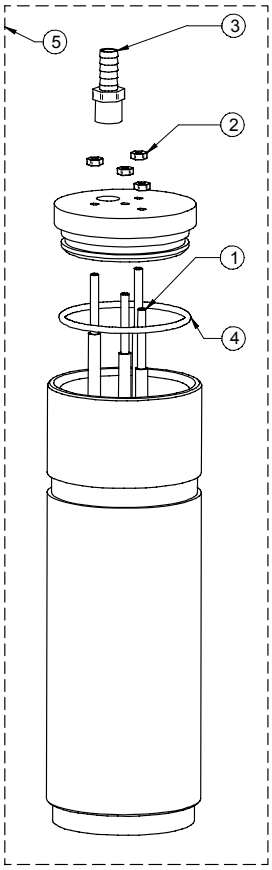
Rep	Part nb	Description
1	930518	Water hose hose Ø18x22mm - L. 93cm
2	930082	Tightening clamp Ø16x27mm
3	930520	Overflow hose Ø18x22mm - Lg103cm
4	930517	Water feeding hose Ø12x16mm - Lg31,5cm
5	930231	Filling cup + lid
6	930081	Tightening clamp Ø12x22mm
7	930515	RTH-V2 filling cup with hoses

Filling cup RTH-V2 60 to 100



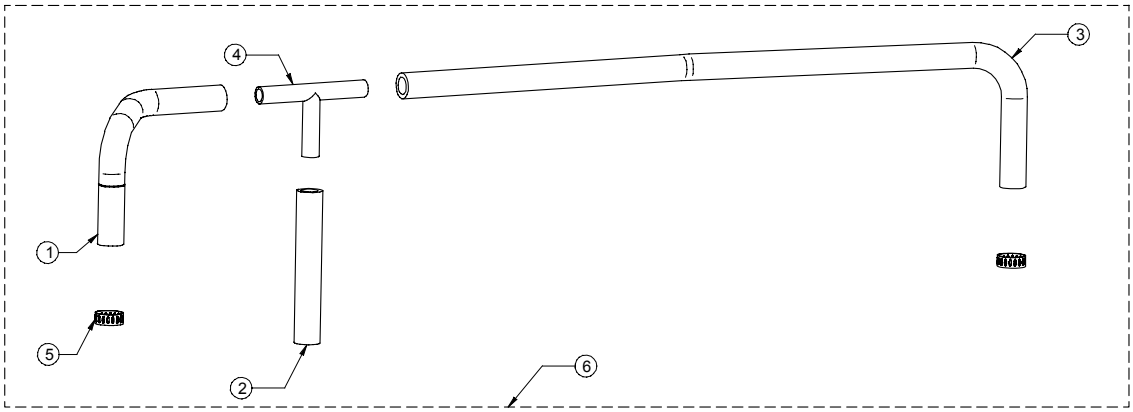
Rep	Part nb	Description
1	930517	Water hose Ø12x16mm - Lg31,5cm
2	930519	Water feeding hose Ø18x22mm - Lg93cm
3	930520	Overflow Ø18x22mm - Lg103cm
4	930231	Filling cup + lid
5	930081	Tightening clamp Ø12x22mm
6	930082	Tightening clamp Ø16x27mm
7	930516	RTH-V2 filling cup with hoses

Water level detection tank RTH-V2 5 to 100

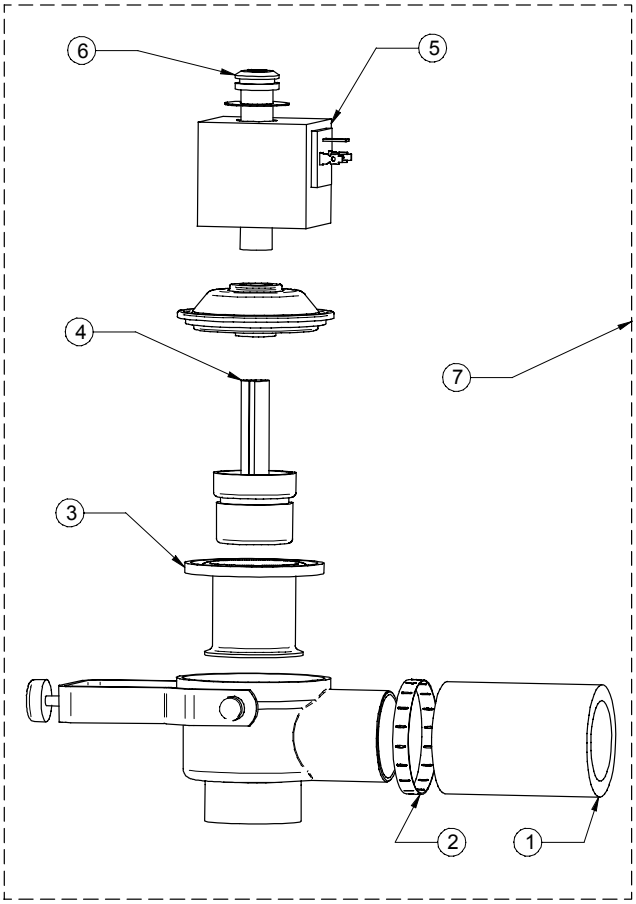


Rep	Part nb	Description
1	930521	Water level sensor (set of 4 electrodes)
2		Stainless steel nut Ø4mm
3		Flutted chromium platted tip 1/4" G - Ø8mm
4	930523	O ring SIL70 (bag of 3)
5	930522	RTH-V2 water level tank

Pressure leveling hose RTH-V2 60 to 100



Rep	Part nb	Description
1		Ø8mm hose - Lg140mm
2		Ø8mm hose - Lg90mm
3		Ø8mm hose - Lg340mm
4		Ø8mm flutted tee
5	930081	Ø12x22mm tightening clamp
6	930526	Pressure leveling hose



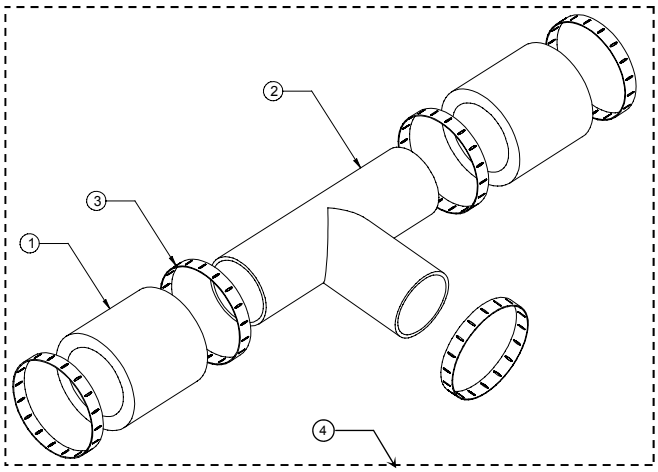
Drain valve RTH-V2 5 to 50

Rep	Part nb	Description
1		Ø40mm - L.80mm steam hose
2		Ø40X60mm tightening clamp
3	930512	Membrane bellows for D137
4	930509	Core assy + spring for D137
5	930510	230V - 30W drain coil for D137
6	930511	Core guide assy for D137
7	930508	RTH-V2 5 - 50 drain valve

Drain valve RTH-V2 60 to 100

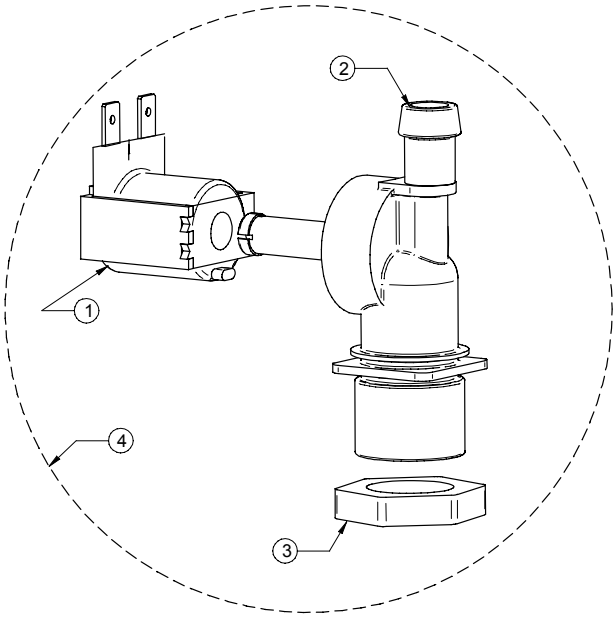
Rep	Part nb	Description
1		Ø40mm - L.80mm steam hose
2	930152	Ø40X60mm tightening clamp
3	930512	Membrane bellows for D137
4	930509	Core assy + spring for D137
5	930510	230V - 30W drain coil for D137
6	930511	Core guide assy for D137
7	930508	RTH-V2 60 - 100 drain valve

Draining tee RTH-V2 60 to 100



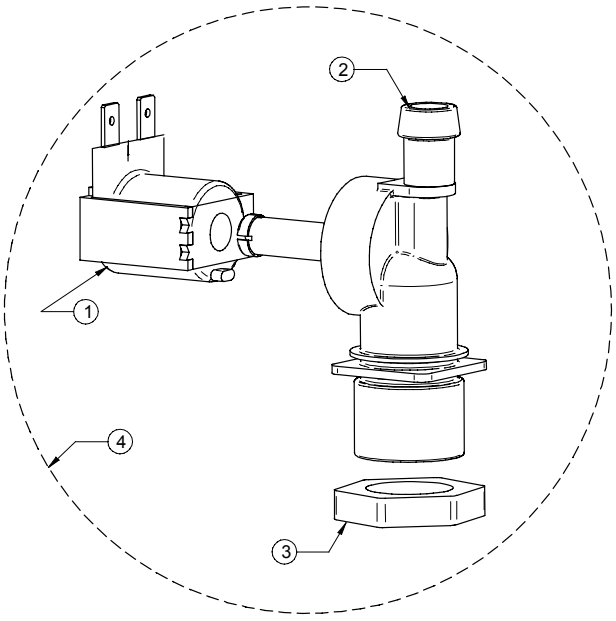
Rep	Part nb	Description
1		Ø40mm - Lg60mm steam hose
2		Ø40mm (130-50mm) stainless steel tee
3	930512	Ø40x60mm tightening clamp
4	930546	RTH-V2 60 - 100 draining tee

Water inlet valve RTH-V2 5 to 50



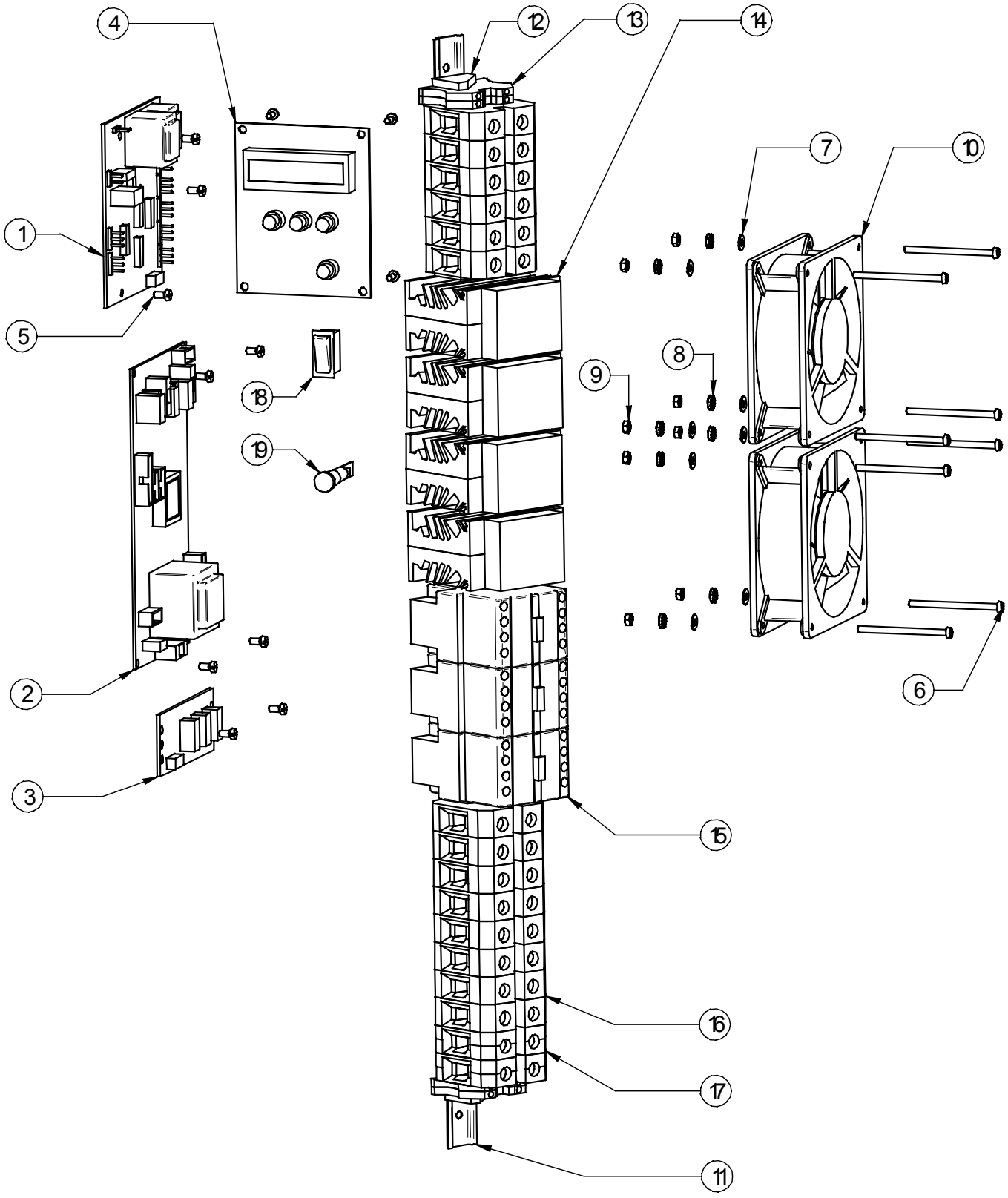
Rep	Part nb	Description
1	930160	Water inlet valve coil
2		Water inlet valve body N2
3	930224	3/4" nut
4	930151	Water inlet valve

Water inlet valve RTH-V2 60 to 100



Rep	Part nb	Description
1	930160	Water inlet valve coil
2		Water inlet valve body N4
3	930224	3/4" nut
4	930151	Water inlet valve

Electrical components RTH-V2 5 to 100



Electrical components RTH-V2 5 to 100

Rep	Part nb	Description
1	930530	Water level control board (ref: 500851/02)
2	930532	RTH main board (ref: 500101/05)
3	930106	Remote information board (option) (ref: 500400/03)
4	930101	Display board (réf: 500600/03)
5		Ø4 - Lg8mm stainless steel cylindrical head screw
6		Ø4 - Lg60mm stainless steel cylindrical head screw
7		Ø4mm stainless steel plain washer
8		Ø4mm stainless steel fan washer
9		Ø4mm stainless steel nut
10	930531	Helicoidal ventilation fan
11		DIN Rail
12		Stop terminal GD35
13		Electrical terminal JSAK 2,5 EN
14	930528 930529	Static relay RTH-V2 5 to 50 Static relay RTH-V2 60 to 100
15	930093	Contactor LC1-D32
16	930095	Electrical terminal JSAK 35 EN
17		Earth terminal JEK 35/35
18	930100	Power light
19	930099	Stand-by light

devatec

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