Operating instructions

HotFog RLVM A1

Version 1.9

Besteman Techno Support
Molenlei 1H
1921CZ Akersloot
Tel.: 0653753106
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Send this declaration to Besteman Techno Support:

Address of the supplier

Transfer and instruction declaration

Transfer of the type : HOTFOG RLVM type no. A1……
Serial no. :……
On the following date :……
By the seller (name) :……
Company :……
Customer name :……
Customer address :……
City/postcode :……
Email address :……
Tel. no. on which the person can be reached
:……

The buyer and/or trained person makes it known through this declaration by signing this form that he/she has been authorised and trained by the seller in the correct operation of the aforementioned type of LVM device. The buyer and/or trained person also indicates/indicate that he/she/they is/are aware of the possible risks and the prevention thereof in accordance with the safety instructions specified on the rear side and understand and will observe the safety instructions contained in the operating instructions. When this declaration is signed, the guarantee arrangement will come into force in accordance with the provisions defined within the terms and conditions for the metal industry.

…… ……
(City, data and signature of the buyer) (trained person)

Besteman Techno Support
Molerlei 1H, 1821 CZ Akersloot The Netherlands

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Preface

You must attentively read this user manual and follow the instructions that it specifies.

Always ensure that the user manual is within reach of the HotFog RLVM A1 or download it from www.bestemantechnosupport.nl

Guarantee and liability provisions in the general delivery terms and conditions of Besteman Techno Support will not be extended or replaced by the aforementioned or what follows below.

Permitted use

The HotFog RLVM (Resonator Low Volume Mist) A1 is only meant for the atomisation of germination inhibitors in potato storage facilities. The droplets are microscopically small and will continue to float around in the storage facility for 12 hours after having used the device because of this. The inhibitor is distributed in the storage facility and will penetrate into the potato mountain through a hollow floor or aisle system and, therefore, the inhibitor can attach to the product.
Any other use can lead to damage to the device and/or the environment and personal injury.

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Type:	HotFog RLVM A1	Serial no.:	
Volts:	220/240	Amps:	5
Year:	2011	Weight:	21 kg

CE

1. Technical data

The BTS HotFog RLVM-H1 is a mist atomiser with a capacity of between 0 and 3 litres of water per hour per spray nozzle. The values of the delivery will depend on the following:

- The viscosity maintenance properties of the liquid to be atomised;
- The quantity of liquid that is passed on to the spray nozzle (to be regulated by using the needle valve);
- The contamination of the bayonet filter.
- The height of the protection product tank.

Weight	: 21 kg
Material	: stainless steel 304
Voltage	: 230 V
Power	: 750 W
Liquid tank volume	: 10 l
Low-culture mist dispersion	: 50 m
Fan speed	: 1400 rpm
Fan volume flow	: 5100 m³/h

Fan

Motor:	220V, 1 phase
Number of revolutions:	1400 min^{-1}
Fuse:	Motor thermal fuse
Power:	0.07 kW
Air displacement (max.):	5100 m³/h (when there is free passage)

Liquid

Stock tank content:	Max. 10 litres
Liquid delivery:	0 to 3 litres of water/hour
Area range:	4000 m^{2} (with stator fans)
Area range:	800 tons of potatoes

Electricity

RLVM supply:	220 to 240 V, 1 phase
S switching box:	Plastic
Safety class:	IP 54
Fused	5 A

Dimensions

Length:	mm	(0.56 m)
Width:	mm	(0,50 m)
Height:	mm	(0.56 m)

Device protection

The HotFog RLVM is only meant for atomising protection products for which the HotFog RLVM should be used for. Any other used can lead to damage to the device, injury to people and/or environmental damage.

Notification

No rights can be derived from these instructions for use.

Blockages can be prevented by following the prescribed maintenance and cleaning schedule. This is the responsibility of the user.

2. Safety instructions and accident prevention

Observe the following safety instructions. Disregard may lead to damage to the device, personal injury and environmental damage.

Authorisation

- Only trained people may be present and set and operate the device during commissioning and operation of this device.
- Do not smoke when this device is operational!
- Switch off sources of ignition in the area to be sprayed.
- Never fill the tank for active ingredients with petrol or another highly flammable liquid (FIRE RISK).
- Pay attention to the following safety issues when using the device for atomising (highly) flammable liquids:
  1. Always have a fire extinguisher ready for use in the vicinity of the device.
  2. Check the flash and ignition points with regard to the liquids to be atomised. Therefore, do not atomise liquids with a flash point that is lower than 60 °C in combination with an ignition point that is lower than 120 °C. If the flash point is lower than 60 °C, the ignition temperature must increase proportionally. When the flash point is reached at 120 °C, the ignition temperature must increase proportionally. When the flash point is reached at 120 °C, the ignition temperature must at least amount to 300 °C.
  3. Never atomise more than 2.5 litres of a flammable liquid /1000 m^3or more than 10 litres of a highly flammable liquid with a viscosity that is nearly the same as water with a water content of less than 50% per 1000 m^3 in area.
  4. Do not atomise flammable liquids in a sealed off storage location without ventilation or when there is an ignition point in the vicinity (explosion risk).

Protection of the building and user

- Follow the application guidelines of the producer or supplier of the used active ingredients and atomising liquids.
- Wear protective clothing in the location where atomising will take place when atomising as recommended by the supplier.

Before use:

- Check whether the device to be put down individually works safely by first running a trial run outdoors. Ensure that there is a stable substrate so that the device cannot slide or fall over.
- Smoking and using sources of ignition are strictly forbidden when filling the liquid tank. Remove all sources of ignition.
- Leaks that the device may present must be sealed professionally b a technically competent person.

After use:

- Do not convey the hot device in a closed vehicle and never with a full protection product tank.

- Inspect the device annually and certainly when different protection products have been used.
- Always clean the resonator and tank using a cleaner prescribed by the protection product supplier (when you wish to change protection products). If the resonator is used regularly, it can be left with a tank filled with the relevant protection product. Air will then not penetrate into the piping and, therefore, crystals will not form.

Important issues to remember!

Read, understand and respect the following safety instructions before
you start to work with the device. Not respecting these safety rules can lead to injury and environmental damage. The instructions for use must be attentively examined and understood by the operator of the device before it is used.

- Always first test the operation of the mist atomiser.
- If you do not know which liquid was used previously, then always fully clean the device before use. Only use the cleaners that the supplier recommends for this.
- Check whether the resonator is positioned correctly in front of the outflow opening of the spray nozzle.
- Check the liquid delivery (the air bubble speed in the liquid suctioning hose is 6 seconds for 20 cm at approximately 3 litres per/hour).
- Check the reaction of the resonator with the liquid to be atomised for a newly to be used liquid. If a droplet occurs on the bottom side of the resonator when the device is put into operation, the air/liquid ratio is still not correct.
- Never atomise more than 2.5 litres of flammable liquid per 1000^2 m.
- Never smoke or have other types of fires in the vicinity of the device!
- Do not atomise chlorine-containing products because of the stainless steel and brass chromed materials that are used to manufacture this device.
- First wash your hands and face before eating or drinking when you have been in contact with the active ingredient. Always follow the recommendations of the manufacturer of the active ingredient with regard to this issue.

When the device does not operate correctly:
Have the device checked by an expert and competent person (supplier).
This device can also be inspected every year before the season when it is to be used. Fill in the data of the maintenance contract and send it to Besteman Techno Support. This can prevent plenty of irritation and stress.

At the back of these instructions for use you will find the forms to have the HotFog maintained every year.

Ensure you are aware of the icons used and what they mean.

- Ensure that the warning labels can be easily read and replace them immediately when damaged.
- Read the user manual before starting to work with the HotFog RLVM!
- Always use an earthed power point.
- Check to which fuse group the power point has been connected and ensure that it is protected with a 30 milliamp earth-leakage circuit breaker.

Attention! Risk of injury with the machine!

Ensure that people who have no experience with the HotFog RLVM are fully informed about the risks of atomising protection products by using the HotFog RLVM. Serious injury can be caused when safety instructions related to the HotFog RLVM are not passed on to people who came into contact with the HotFog RLVM. The machine may only be operated by people who are 18 or older if they have studied the user instructions and have been informed about the risks and dangers of the HotFog RLVM and the protection products to be atomised.

Pay careful attention when carrying out maintenance work!

- Position a warning sign near the HotFog RLVM with the warning: “maintenance work: out of service”;
- Stop the machine and impede anybody being able to start it by disconnecting the plug from the power point;
- Inform the people in the vicinity that work is being performed on the device;
- Consult the user manual;
- Pay attention to the hot components of the device. (Risk of suffering burns.)

Prevent the risk of being poisoned!
Ensure there is good personal protection!

Stay away from the operational fan! Never remove the protective guards! There is a risk of being injured when you come in contact with the running fan of the HotFog RLVM.

When atomising protection products with the HotFog RLVM, you will be working with extremely small particles of crop protection products. The probability of coming into contact with the protection product is, therefore, significant. In addition to absorption of the crop protection product through the mucous membranes of the airways, the risk of absorption through skin is also present. This may cause very serious cases of poisoning!

DO NOT ENTER a storage location where a HotFog RLVM is running or has just been running and where ventilation has not yet taken place! Avoid having to perform work in the atomised storage location as long as possible after ventilating. If you need to enter the storage location, take the require precautions.

Always position a warning sign where atomisation has taken place with the text: “Do not enter this storage location because there is a risk of being poisoned!”

If you need to enter the storage location after having treated the crop, ensure you have sufficient personal protection as prescribed by the manufacturer of the protection product.

3. Operation of the BTS Resonator Spray nozzle.

Diseases and pests in storerooms, sheds or greenhouses can be controlled by using the HotFog RLVM. This is accomplished by the very fine distribution of crop protection products in the form of mist. The droplets are microscopically small and will continue to float around in the storage facility for 12 hours after having used the device because of this. The protection product is distributed in the greenhouse, shed or store and penetrates in-between the product and attaches itself to the product.

The airflow that is blown through the spray nozzle and is released at the venturi on the outside of the spray nozzle has the shape of a cone and is hollow. A vacuum is created in the cone through which the liquid is suctioned up from the tank. The liquid is, next, mixed with air in the BTS spray nozzle after which the liquid hits the vibrating resonating resonator with a speed of more than 700 km/hour at 4.5 bar once it is outside of the spray nozzle and, therefore, a fine mist is created.
A fan is installed behind the spray nozzle that blows directionally and without turbulence. This ensures that the crop protection product is taken by the airflow and is distributed regularly over the storage location.

The method consists of allowing particles to float for a long time in the storage location where the device has been positioned. Administration, therefore, must take place when people are no longer in the storage location. This in order to prevent contact with the crop protection product.

Using the HotFog RLVM is best when there is a reasonable large temperature difference indoors when compared to outdoors so that the natural air movement in the storage location assists in distributing the protection product in the storage location.

A storage location treatment using the HotFog RLVM must always be performed in a sealed off storage location. After approximately 8 to 12 hours after treatment, the storage location can be ventilated should this be required.

Components of the HOTFOG RLVM1-1

1. BTS Resonator spray nozzle
2. Liquid needle valve
3. Fan position lock nuts
4. Bayonet filter
5. Pressure-reducing valve
6. Orion or Euro air coupler
7. Storage tank
8. Timer
9. Air temperature controller
10. Air heating
11. Stator fans
12. Fan liquid collection tray (can be ordered separately)
13. Resonator

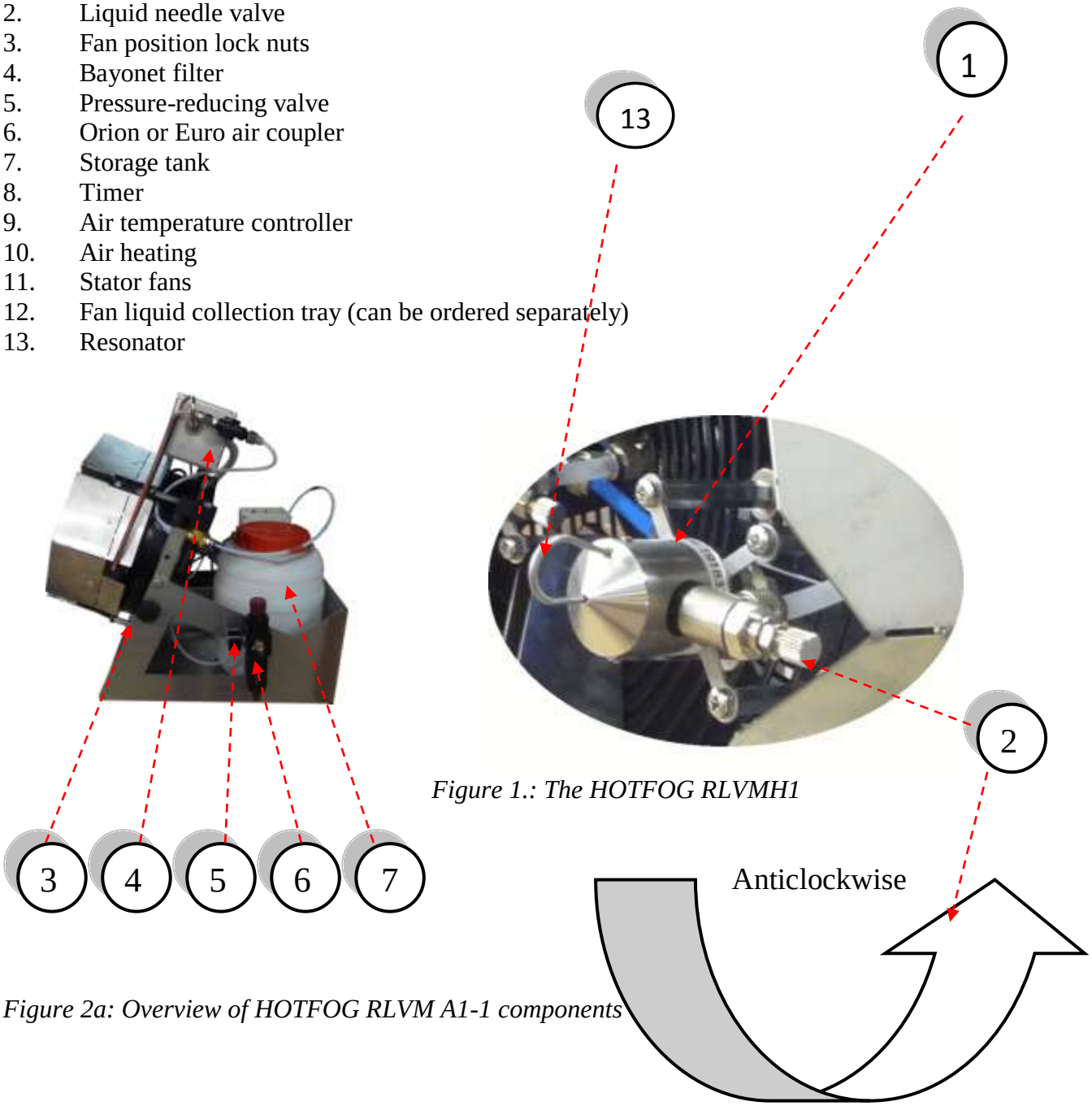


Figure 1.: The HOTFOG RLVMH1

Figure 2a: Overview of HOTFOG RLVM A1-1 components

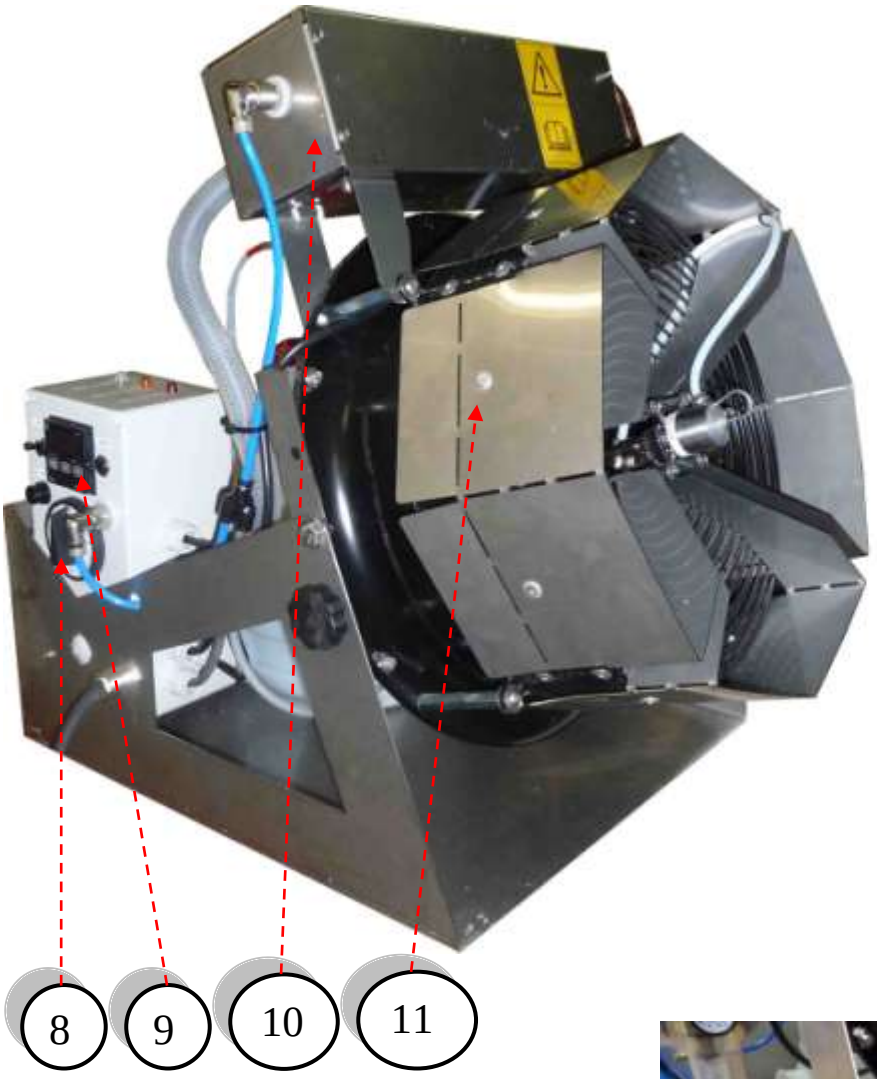


Figure 2b: Overview of components HOTFOG RLVM A1-1

a. Power supply
b. Mode indicators
c. Heating on
d. Up key
e. Down key
f. Mode key
g. 5 A fuse
h. Liquid valve push button
i. Timer

j. Heating indicator light
k. Operating pressure too low indicator light
l. Power supply available indicator light
m. Protection release reset button

4. Connection and operation

Power supply
The BTS Hot-Fog RLVM is supplied by 220/240 V 50 H light current. When the power supply cable is extended, it is important that it has a diameter of at least 1.5 mm^2 and has been uncoiled completely from the reel. Insert the plug of the compressor in the power point before commissioning the HotFog RLVM. Always ensure that the wall socket is earthed and that this power point is also connected to a 30 milliamp earth leakage facility.

Compressed air
Ensure that the end pressure of the compressor is set to at least 7 bar and that it does not amount to more than 10 bar. The compressed air compressor must also always be positioned outside the store. The operating pressure for the HotFog RLVM must at least be 4.5 bar (4.5 bar for at least 60 to 70 l/min.). The compressed air hose can be connected by using an Orion or Euro small quick coupler. The quick coupler of the hose must be connected to the location as indicated in figure 3:

Height of the BTS HOTFOG RLVM.
The HOTFOG RLVM can be easily set to the correct height. Always allow it to atomise freely at the storage location and install it securely at an acceptable height of at least one meter in an upright position on top of the potatoes or on the wall so that the device cannot vibrate and fall or simply fall somewhere. Set the required atomising angle by positioning the fan at an angle of no more than 20 degrees obliquely because, if not, the resonator will not be able to operate properly otherwise. A separate frame can also be supplied to separately suspend the tank from the wall. This could then possibly be installed on the other side of the wall. To be positioned up to 1 to 1.5 metres under the HotFog RLVM. This tank can then be filled manually. Filling it automatically is an option.
There is also a liquid condensation collection tray that can be supplied. This is slid under the fan. It can collect liquid or crystallisation.

Position of the fan
The fan can be moved from its horizontal position to set the mist flow:
- Loosen the grip nuts (see figure 3) on the frame (hold the fan pipe whilst doing this).
- Set the fan pipe to the required position (not more than 20º upwards)
- Retighten the grip nuts on the frame.

Ensure that the mist flow does not touch the crop and is pointed towards the open storage location so that construction parts are not touched either! Use in a large area: have BTS advice you.) When you use the HotFog RLVM for the first time: First allow the RLVM to run a trial run without having been connected to the protection product tank. Next, try it with the protection product and check whether the resonator reacts appropriately and the operating pressure is set correctly (4.5 bar).

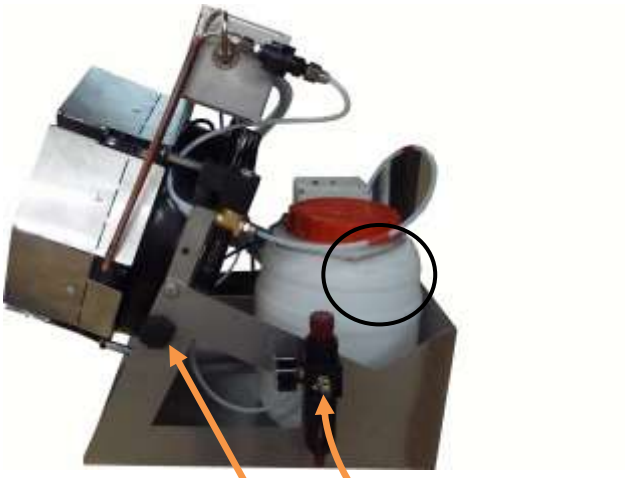

Lock buttons on both sides
Compressed air connection (Orion or Euro small)

Figure 3.

Filling the tank with crop protection product
Always carefully clean the protection product tank when different protection products are used. Always allow the protection products to be atomised pass through a mesh filter before adding them to the protection product tank. Note: always ask for advice about the liquid temperature when mixing with water. And always bear in mind the low boiling point. Set the required temperature (SP) and liquid start temperature (Alm) of the heating. Mixing with water takes place with various heat temperatures (depending on the protection product type). When the tank is filled with the protection product to be atomised, it can be repositioned in the device. Ensure that the level of the protection product in the tank is always lower than the resonator spray nozzle.

Crop protection product mixing mechanism
Specific protection products must be mixed. A mixer is not delivered as standard with the BTS resonator but can be supplied upon request. When the tank has been filled with liquid that sags (40/50 °C liquid), the lid must be repositioned on the tank. Always check whether the vent in the lid is still open because, if not, a vacuum is created in the tank and no more protection product will be atomised.

Figure 4: The stirring mechanism for the liquid supply

Liquid supply
The liquid supply is set to 3 litres per hour (viscosity of water).
This has been set by using the needle valve.
If the liquid is thicker, the capacity of liquid that will be atomised will be lower.
The needle valve must be set completely up to again increase the capacity.
After having atomised a number of times, you will know exactly how much liquid is supplied by the device.
If this, for example, is two litres per hour, perform the following tasks.

1. Unscrew the liquid hose and remove from the spray nozzle.
2. This will contain a small hose with a length of 40 cm.
3. Cut off 10 cm from the end of the small hose using a knife.
4. Again insert the thinner hose through the thicker hose.
5. Again screw the coupling nut on to the valve of the spray nozzle.
6. Check the delivery of the liquid per hour during the next misting session.
7. This must not be more than 3 litres per hour.

Theorem: The less fluid per hour is sprayed, the finer the mist.

If you see a droplet on the resonator of the spray nozzle during testing, the spray nozzle is being supplied with too much liquid or the air pressure must be set to a lower or higher value with regard to this liquid. Every liquid reacts differently!

Pressure	Compressed air consumption	Delivery	Drop size
4.5 bar	54 litres / min.	3 litres. (water) .	0 - ≤ 8 microns

The air supply is controlled by a pressure-reducing valve with filter that can be found on the side of the plate frame (see figure 5). The air pressure can be controlled using this. Ensure that the compressor pressure is set to at least 7 bar.
The best drop is obtained at a pressure that is in relation with the liquid delivery. (This is usually 4.5 bar operating pressure.) This is indicated on the pressure gauge of the pressure-reducing valve. Do, however, pay attention to the drop formation, that is, what is commonly referred to as the splashing of the liquid on the resonator of the spray nozzle.
When this happens, set the pressure to the correct setting so that what is commonly referred to as splashing stops. Increase or decrease the pressure by pulling the button on the pressure-reducing valve first slightly up before turning the button. This will set the operating pressure at a higher or lower value. The resonator must always be degreased when testing.

Figure.5: Pressure-reducing valve with pressure gauge

Operation

Always wear protective clothing.

A timer has been installed on the HotFog RLVMA1. This means that you can automatically operate the HotFog RLVM. Check whether you are using the same liquid as during the previous misting session before you insert the plug of the HotFog RLVM in the power point. If this is not the case: check the liquid delivery and spray pattern first. If the plug is in the power point, first always set the resonator protection by pressing the reset button to set the protections.
Next, the timer can be set.
The speed of the liquid to be atomised can be checked by verifying the speed of one air bubble in the liquid suctioning hose. This is the air bubble that can be inserted in the suctioning hose by uncoupling the suctioning hose and again reconnecting it immediately. The speed of an air bubble in the liquid hose over 20 centimetres specifies the quantity of liquid atomisation per hour. Three litres per hour is an air bubble speed of 20 cm in 6 seconds.) See figure 6.
If you always use the same liquid, this only needs to be set once.

The heating can be switched on by setting the "heating" switch to "on" . The temperature control can be set in accordance with the instructions provided on page 17. If the temperature has been set correctly for a specific liquid, these settings will be remembered in the temperature control. Even when the HotFog LVM has been switched off completely.

n. Mode indicators
o. Mode key
p. Up key
q. Down key
r. Hidden release

Setting the required temperature:

If the mode indicators have not lit up, the real temperature will be specified.

To change a temperature setting, the hidden release key must always be pressed as well as the required function key.

A green indicator light will light up by pressing the Mode key.

Sp = the required temperature.
Setting the maximum temperature to 450 °C

The spray nozzle air temperature will then reach the 100 °C mark approximately.

This will heat up the liquid at 3 litres per/hour to between 60 and 70 °C.

Mode indicators

Setting the liquid start:

If you again press the Mode key, the “ALM” indicator light will light up green.

The temperature can be set in such a way with the Up and Down buttons that the liquid valve will open.

Example:
If the “SP” required temperature is set to 450 °C;
And “ALM” is set to 150 °C;
The liquid valve will then open at a temperature of 300 °C compressed air. Next, the compressed air will continue to heat up until the required temperature is achieved.

If the liquid in the suctioning pipework starts to boil, the liquid will not reach the spray nozzle. If this occurs, the ALM setting must be increased by 50 °C so that the liquid valve opens earlier.

Figure 6: Suctioning hose tank 5 sec. over 20 cm is 3 litres/hour.

Figure 7: Bayonet filter

Cleaning the filter
Regularly clean the bayonet filter by turning it anticlockwise a quarter of a turn and holding the filter under a tap or cleaning the filter using an air gun to rinse or blow it clean.

Starting the HOTFOG RLVM-A1

1. Remember to wear protective clothing.
2. Check the bayonet filter.
3. Clean the tank (or check the dirt that may be present in the tank).
4. Fill the tank with the liquid to be atomised.
5. Remove the dust from the resonator (if very dirty, clean using a cleaner (detergent) and hot water).
6. Compressor pressure set at a minimum of 7 bar.
7. Connect the compressed air.
8. Check the pressure and, if not set correctly, ensure it is set to 5 bar.
9. Check that the resonator is positioned in front of the opening in the spray nozzle and, if this is not the case, adjust it.
10. Switch on the power supply (the white light will light up).
11. Activate the protection by pressing the reset button on the left of the switching box. (Pag 12 pulse button m)
12. Set the timer to the required atomising time (an extra ¼ of the theoretical atomising time). Base your calculations on three litres per hour and always check the liquid level after use.
13. Activate the heating using the pulse switch (switch upwards).
14. Heating setting as preferred. This will normally be set to SP 450 and will already be set to 100.
15. When the COMPRESSED AIR has at least reached the ALM temperature, the liquid valve will open.
16. Check whether drops are not formed on the resonator. If drops are formed, change the compressed air pressure.
17. The timer must have been set in such a way that the resonator only atomises the required liquid.
18. If the tank is not fully emptied leave the liquid pipework filled.
19. Clean the RLVM as described in section 5.

Starting the BTS HOTFOG RLVM-A1 adjustment

The speed with which the RLVM atomises is linked to the time that the resonator must heat up and the viscosity of the liquid.
You can check how much liquid is being atomised by checking the speed of an air bubble over 20 cm of the suctioning hose. The 20 cm is indicated on the suctioning hose in-between the red tapes on the suctioning hose. If an air bubble needs 8 seconds to travel from one tape to the other on the suctioning hose, the spray nozzle will be atomising ± 2 litres per hour.
The lock nut of the needle valve of the spray nozzle can be locked after use.
This should only be performed when one liquid type is used. The treatment time must be set based on the quantity of liquid that will be atomised. The pressure-reducing valve must be set to 4.5 bar when atomising is steady. This can be read from the pressure gauge. If the resonator does not atomise a sufficient quantity, open the needle valve slightly more.

5. Maintenance and cleaning

- Inform those in the vicinity of the device that work is being performed on it.
- Only have maintenance performed by people who are competent in this area.
- Liquid drops that originate from the fan and grille are collected using a collection tray especially made for this purpose. This can be supplied separately by Besteman Techno Support.
- Ensure that the plug of HotFog RLVM has been disconnected from the power point.
- Thoroughly clean the machine using hot water and a cleaner (detergent) before performing maintenance work.

Maintenance after each treatment

- Clean the storage tank of the BTS RLVM after every treatment when another protection product is used or when the inside of the tank is contaminated.
- Drain the moisture from the tank of the compressor by using the drainage valve.
- Ensure that the resonator of the spray nozzle has been thoroughly degreased before liquid atomisation is used when atomising liquid on a water basis. This can be done using a little bit of pure detergent, ammonia or methylated spirits. This should certainly be done when the liquid is changed.
- Check whether the resonator spray nozzle atomises the liquid correctly before starting any atomisation session so that no surplus liquid remains behind suspended from the resonator. And to ensure that drops do not form on the bottom side of the resonator during atomisation.
- If this position has been correctly adjusted, the nut of the needle valve can be locked by tightening the nut of the needle valve against the valve collar. If the resonator stops atomising when used, open the needle valve at the spray nozzle slightly more.
- If the same liquid is used each time that always remains liquid and does not harden, the liquid piping and tank can be left as-is with the protection product inside. Air or water will, therefore, not mix with the liquid and the liquid will not crystallise. If it should crystallise at the spray nozzle, the heat of the spray nozzle will make the crystals melt when it is started up.
- The liquid pipework can be cleaned by adding a cleaning liquid in the GBM tank (leave the lid of the tank in place).
  Releasing the heat
  Switch the liquid push button when atomising by placing 1 mm plastic film in-between the resonator and the spray nozzle.
  The cleaning liquid will then be pumped from the spray nozzle to the protection product tank.
  This action must be repeated until you believe the pipework is thoroughly clean.

Weekly maintenance

- Check the oil level of the compressor.
- Check whether the moisture in the tanks of the compressor has been drained.
- Check whether the hose and compressor filters are still sufficiently clean and, if required, clean them.

Yearly maintenance

- Thoroughly clean the HOTFOG RLVM after every season.
- Conclude a maintenance contract with your supplier (BTS). The supplier will ensure that the maintenance is performed correctly.
- Treat sensitive places against oxidation (grease, treat with Tectyl and paint).
- Check the oil level of the compressor.
- Drain the moisture from the tank of the compressor.
- Clean the storage tank of the RLVM thoroughly.
- Check the fan for dirt if it is seriously contaminated and should it vibrate. Have it cleaned by your dealer should this be the case.

Maintenance to the compressor

- Check the description that was supplied with the compressor. After the first 50 hours, the oil of the compressor must be replaced when your compressor is not an oil-freecompressor.
- Always drain the condensate from the tank of the compressor. If possible, positioned an air drier in-between. The condensate must be drained from the compressor tank every 10 operating hours to extend the service life of the resonator and other air tools. Use gloves when doing this since crop protection product residue may still be present in the tank! Draining can be automated for a low fee by Besteman Techno Support.
- Always call in BTS or personnel trained by BTS with regard to an overhaul of the HotFog.
- Check whether the device has been retested after maintenance. Ensure that original BTS or CE-certified accessories/parts are always used during maintenance or replacement. If original BTS accessories/parts are not used, correct operation cannot be guaranteed and the guarantee may become null and void.

6. Problems and faults

Problem	Cause	Solution
Spray nozzle stops atomising regularly	Needle valve blocked. Needle valve closed too far.	Open the needle valve ¼ turn more (anticlockwise).
	Filter RLVM blocked.	Thoroughly clean the filter.
	Suctioning hose of the RLVM is suctioning false air somewhere.	Tighten the nut of the suctioning hose that connects the suctioning hose to the tank tightly.
	The compressor has too much condensate and is blocking the air supply.	Have the condensate drain from the compressor pressure tank.
	The pressure-reducing valve air pressures of the compressor is too low. The pressure-reducing valve pressure of the RLVM is too low.	Set the pressure-reducing valve compressor pressure to at least 7 bar. The operating pressure of the RLVM should be 4.5 to 5.5 bar (check drop formation on the resonator).

Problem	Cause	Solution
The compressor does not start.	The starting voltage is too low.	Too many devices are connected to one fuse group.
	The compressor has been too cold.	The compressor must be heated and try to start by setting the main switch to position 1. Do not yet start the LEF. Next, immediately stop the machine and repeat starting a number of times.
	The compressor tank is still under pressure. The high pressure has not yet been released from the compression pipework.	After having used air, the compressor will automatically start.
	Too little current.	A 2.5 mm extension lead and the correct voltage should be used.
	The thermal protection of the compressor has switched off.	Again switch on the protection by switching the switch. See the compressor's manual.

7. Transport, storage and disposal

Transport of the BTS HOTFOG RLVM

- Ensure that the plug of the HotFog RLVM is disconnected from the power point.
- Ensure that there are no protruding or loose parts.
- Always ensure that the HotFog RLVM is blocked so that sliding, tilting or rolling away is impossible.
- Ensure that the device stays thoroughly clean and that windows are open in the vehicle during conveyance in relation to hazardous fumes that the device may emit.

BTS can supply a special transport carrier for conveying two HotFog RLVM devices at most. This will have place for a compressor underneath. Visit the www.bestemantechnosupport.nl website for more information:

Downloads : BTS RLVM KAS folder

Storage

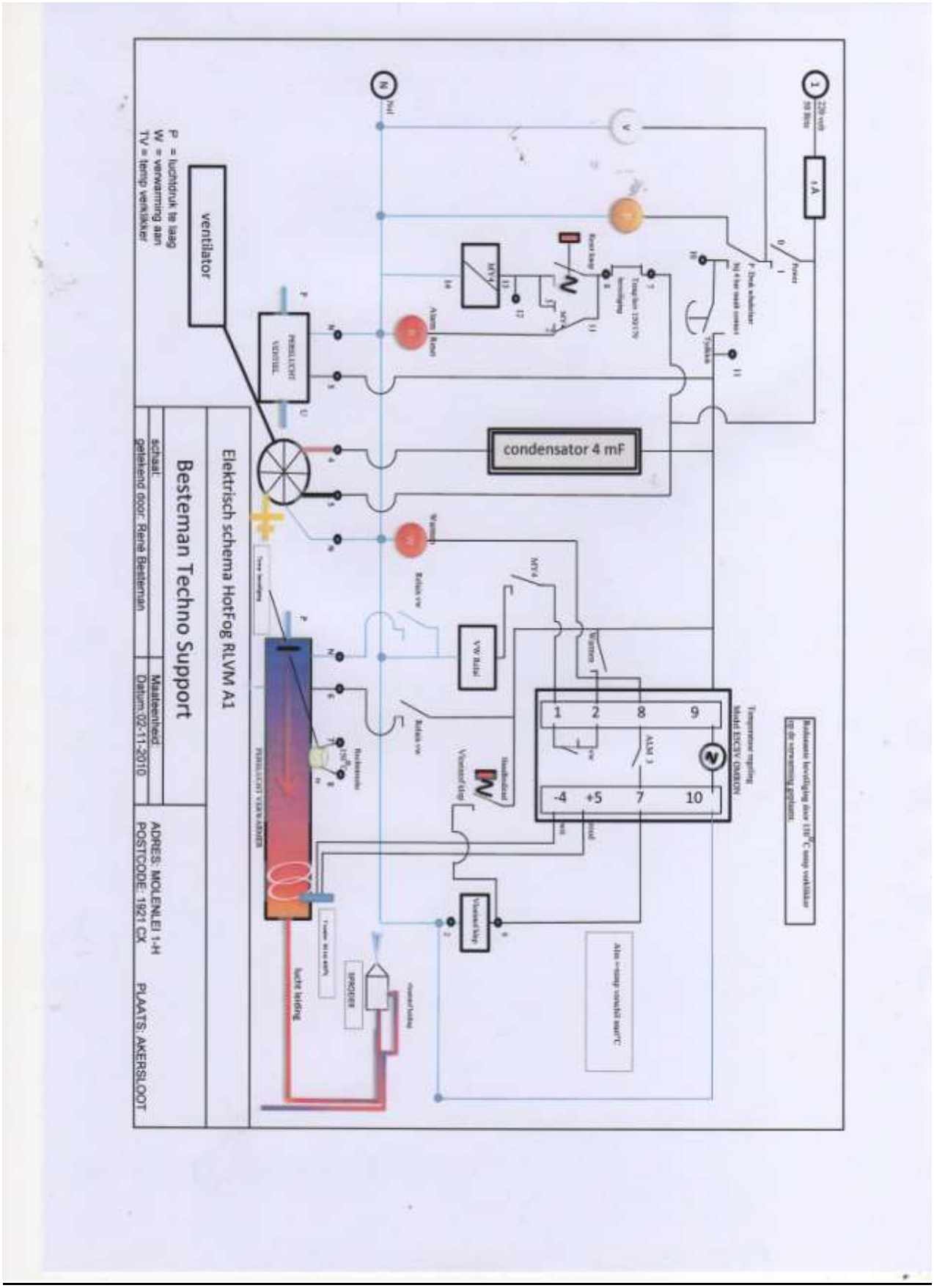
- Thoroughly clean the HotFog RLVM using a soft brush.
  Avoid brushing the resonator (since this may undo settings).
- Ensure that the plug of the HotFog RLVM has been disconnected from the power point.
- Thoroughly clean the HotFog RLVM using the cleaners recommended by the supplier of the protection products. Never, however, use acids, ether and/or thinners since they will dissolve the rubber materials.
- Check the HotFog RLVM for components that are loose and any defects.
- Carry out all the items that are listed in the Maintenance section.
- Store the HotFog RLVM in a covered and frost-free location.
- Grease the places that are sensitive to oxidation.
- Ensure that children cannot come in contact with this device.

Removal and disposal

After a long period of intensive use, the HotFog RLVM will have to be replaced and the device will have to be removed and disposed of in a safe manner that is environmentally friendly. The removal can be left to the supplier but you can also do this yourself. When you will be disposing of the machine yourself, follow the following instructions:

- Thoroughly clean the machine.
- Separate the different materials and offer them to the local authorities for waste processing. The hydraulic oil and grease are classed as household chemical waste and must, therefore, also be processed as such.

8. Electrical diagram: HOTFOG RLVM A1



8. RLVM A1 2011 PART LIST

PART NO.	DESCRIPTION	QUANTITY
40001313	DOUBLE NIPPLE WITH BSPT WIRE 1/4″	2
ES2721222	PRESSURE SWITCH EXCHANGE 1/4 MS FPM 1-10 BAR INS	1
27MAW13	MAN COUPLER EURO RINO INSERTION NIPPLE ¼″ MALE	1
51410813	PRESSURE-REDUCING VALVE FR 1/4′ 0/8 BAR PROTECTED 042-FR 1/4″-20-0-8 BAR-SS SEMI-AUTOMATIC	1
GAAB7XBF65	MAGNETIC VALVE GEVA 2/2 NC 230V 50/60 HZ 0.5-15 BAR 1/4″ MS NBR VITON	2
20050613	STRAIGHT COUPLER MOUNTED KIK O-6 * 1/8	1
23170600	PIPEWORK Y-PIECE PLASTIC 6 MM	1
56114010	PRESSURE GAUGE 40 MM 0 / 10 BAR 1/8″ REAR CONNECTION	1
3012136	DOUBLE LUG CLAMP MIKALOR 11 - 13 MM	2
40021317	PLATED REDUCING NIPPLE WITH BSP WIRE VR 3/8″ BU X 1/4″ BU BRASS NICKEL-	1
15MAW13	ORION MAN COUPLER RINO INSERTION NIPPLE 1/4″ OUTSIDE	1
20090600	SDK- O-6 PARTITION LEADTHROUGH (PAGE 385)	1
3012144	HOSE CLAMPS 2 LUGS - STEEL GALVANISED	2
20010613	STRAIGHT MOUNTED COUPLER RIKP-O 6 * 1/4″	1
20040613	ROK-O 6*1/4″ BI	1
AL21SB00	PLUG MAGNETIC VALVE GB STANDARD DIN 4365-A	1
701620	TOGGLE SWITCH A-E 16 A/250 V TYPE C1700ROAAF 16 (4) A / 250 V~ T85	1
701633-8A	TOGGLE SWITCH. E-E 16A TYPE C1710ROAAE 16 (4) A / 250 V~ T85	1
726940-8J	MINI SIGNAL LIGHT 220 V CLEAR	1
726923-8J	MINI SIGNAL LIGHT 220 V ORANGE	1
726915-8J	MINI SIGNAL LIGHT 220 V RED	2
9392051	CAPACITOR 4 MF 400 V DL=200	1
S804766	FAN EBM W4E315-CP18-31 (O 315 MM)	1
S805120	GRILLE EBM 64558-2-4039 84149000 (O 315 MM)	1
2221070	BAF U BESTEMAN ATOMISER TYPE BTS	1
2221208	PTFE PIPE 3X1 MM	0.15 m
10023725	O-RING VITON 51414 9 X 2	1
10500100	RING RX FPM 19 10 X 3	1
10500100	VITON RING RING RX FPM 19*10*3	1
51730 080 001	M8 LOCK NUT/RING SS A2 6K- KVP D985(1987)	2
51420 100 001	M10 D125 - 1A SS A2 WASHER/ZF KVP	2
51080 040 001	M4 D934919870 SS A2 6K - KVP NUT	4
51010 080 016	M8 X 16 D933 SS A2 6K -TAPB I4017(D933)	6
51080 080 001	NUT SS M8 SS A2 6K-KVT NUT	2
34190 040 012	OMNI PBR AL/SS A2 BEAM NAIL 4.0 X 1.2 MM	8
51420 080 001	WASHER SS A2 M 8 D125-1A /ZF KVP	8
732-436	21EN15TO44 (170/150)TERMINAL SWITCH, NC (OVERHEAD SAFETY)	1
163-4691	R13-24A-05-BR SWITCH PUSH BUTTON	1
133-7266	TEMPERATURE CONTROLLER MODEL E5CSV OMRON E5CSVR1T500AC	1
585956	MOELLER DILEEM - 10240V 50 HZ CONTACTOR 3 KW, 220 V AC	1
1006849	MULTICOMP T23A150BSR2-15 TERMINAL SWITCH NC 150 °C	1
1491472	CABLE SILICONE 3 CORE 1 MM² PER METER	4
I3913	HALEK ABS TERMINAL BOX CONV HCT -802 (240X120X100)	1
858090/61	RLVM - CARRIER WITH 2 FLOORS (BLUE)	1
QJ14TTNYB	CAP HOLDER QJ1/4TT-NYB sales price per item € 3.50	1
QJ4D7614NYR	QUICK CAP QJ4676-1/4-NYR sales price per item € 2.43	1
505350SS	STRAINER 505350PP(FILTER PART)	1
TR010	TANK ROUND Graf 10 Litres	1
1205.13.00	HEXAGONAL SCREW-IN DAMPER 1/4″	1
SEA 1 1 CD	25 PICT VDMA 50 X 96 LIVRET/CONS.SECU	1
PDR1L1	ELECTRICAL RISK GEL.POL/BLACK ON GEE 26 X 52 MM	1
4501-P006 REV. C	CONVERTED BRACKET 210 X 1.5 REV. B (FAN BRACKET)	2

4501-P011 REV. A	EXTERNAL STATOR FAN	4
4501-P008 REV. C	PLATE SUPPORT 130.26 X 60 REV. C (INTERNAL STATOR FAN)	4
4501-P001 REV. C	RESONATOR LVM 4501 SS REV. C	1
4501-P010 REV. A	SS COLLECTION TRAY	0
4501-P007 REV. C	STAR 72 X 62 REV. A	1
135011059902	SPRAY NOZZLE CLAMP SERIAL 135 HOSE CLAMPS	1
301 6700 411 52	SPACER BUSHING 10x70 M6 zinc Bi Bi	4
301430041152	SPACER BUSHING METAL M4 X 30 10-10	4
347 0400 415 53	BODY RING M 4	8
347 0500 415 53	BODY RING M 5	6
347 0600 415 53	BODY RING M 6	6
106 0840 699 01	GRIP NUT M8 C=40 mm BLACK	2
73101,000,742	RIPCA CABLE TERMINAL BLUE SMALL CLAMP	1
73101,000,542	RIPCA CABLE TERMINAL BLUE STANDARD CLAMP	5
73101,000,655	RIPCA CABLE TERMINAL BLUE WITH LUG 5 mm	2
341 0416 415 53	SUNKEN SCREWS DIN965 M4x16 1000	4
502930	ADEL TERMINAL STRIP NYL 12P 4MM2	1
663096	BAUS TIMER CHAKELAAR136.2 6H 230v XD	1
6927370	DONE VD 1.5 YELLOW GREEN DS 100	0,1
4123212	DRAK VMVL SG1 BLACK RI100	4
3498516	FER GLASS FUSES 5 AMP F DS10	2
3487501	FERR FUSE HOLDER MIDINB A204953J XD	1
426411	HK NEOPR. CABLE 3 X 1.5 BLACK 3M	1
2069151	LEGRAND VIK 2.5 mm zero terminal 39300	2
453878	PFLI CONNECTION NUT BRASS PG13.5	1
514000	WISK PACKING BUSH SKV13.5 SPRINT	1
515528	WISK IMPACT RESISTANT CONNECTION NUT VS11 PG11	1
3227980	PHOE UNIVERSAL CLAMP UT 4-PE	2
2639482	WM BLOCK TERMINAL BK 12 CRN	1
4BKNAL/0204012	BLIND RIVET ALUMINIUM/SS 4 X 12 MM	10
79100000	PTFE PIPE 6/1 MM TRANSPARENT	2
81104238	SS 6/1 HH PRECISION PIPE GRADE 316 L SEAMLESS	1,5
262107	PP PIPE BRACKET MODEL B 20 MM	1
51730080001	BOLT SS M8 SS A2 6K LOCK BOLT/RING KVP	8
2494789	SMITT RELAY BASE VM-4T 14 PINS (MY4)	1
1705136	OMRO RELAY MY4(S) 230AC	1
1578517	ERIC DIN PROF DR 15 LG2	1
502930	ADEL TERMINAL STRIP NYL 12P 4MM2	1
474817	RAFI FUSE HOLDER 1040020030000	1
CEV25	CE LABEL VINYL 25 X 25MM/PER 100	1
4501-P101	HEATING BOX PART A	2
4501-P102-REV. A	HEATING BOX CABLING PART B	2
4501-P104 REV. A	HEATING BOX PLACE THE HEAD	2
4501-P108	HOTFOG HEATING BRACKET	2
4501-P001 REV. C	RESONATOR LVM 4501 SS REV. C	1
BESTEMAN1	HEATER BESTEMAN 1 FT200-650-240-1-G3/8-G3/8-TF1	1
0051710	THREADED NIPPLE REDUCING RING VR-P 3/8" BU - 1/8" BI MESS NICKEL-PLATED	1
33080613N	KNEE IN-SCREW COUPLING PUSH-IN WITH BSPT EXTERNAL THREAD 'KIKI-LB-MN-6 x 1/4"	1
32050610	KNEE IN-SCREW COMPRESSION COUPLING UNIVERSAL WITH BSPT WIRE KIK-You 6 x 1/8"	1
705012	SMALL PUSH BUTTON RED A	1
705080-8A	SMALL PUSH BUTTON BLACK A	1
40021317	REDUCING NIPPLE 1/4" X 3/8"	1

9. Declaration of conformity

(in accordance with annex II A of the Machinery Directive)

EC Declaration of conformity for machines
(Directive 98/37/EC. Annex II. under A)

Besteman Techno Support
Molenlei 1H
1821 CZ Akersloot

declares that the:

BTS HOTFOG RLVM

meets the Machinery Directive (98/37/EC) and IEC guideline as changed locally and also declares that the following (parts of) European (harmonised) standards have been applied;
EN ISO 12100-1. EN ISO 12100-2. EN 1050 .

and meets the following national and international technical standards and specifications:
EN 294. EN 415-4. EN 418. EN 619. EN-ISO 10218. EN 954-1. EN 983. EN 1037. EN 1088. EN 60204. NEN-EN-IEC 60204-1

Machine: HOTFOG RLVM A1 Type:……

Date on which the final check took place:……. Serial no:…...…….

Heiloo. juli 2010

L.P. Besteman

Maintenance performed in partnership with different suppliers. Visit our website for more information or email us by using the following address:
info@bestemantechnosupport.nl

When the device does not operate correctly:
Have the device checked by an expert and competent person (supplier).
This device can also be offered for inspection before use on a yearly basis.
Ask about our maintenance contract.

Besteman Techno Support . General sales and delivery terms and conditions of the Metaalunie (Dutch Metal Industry Association)