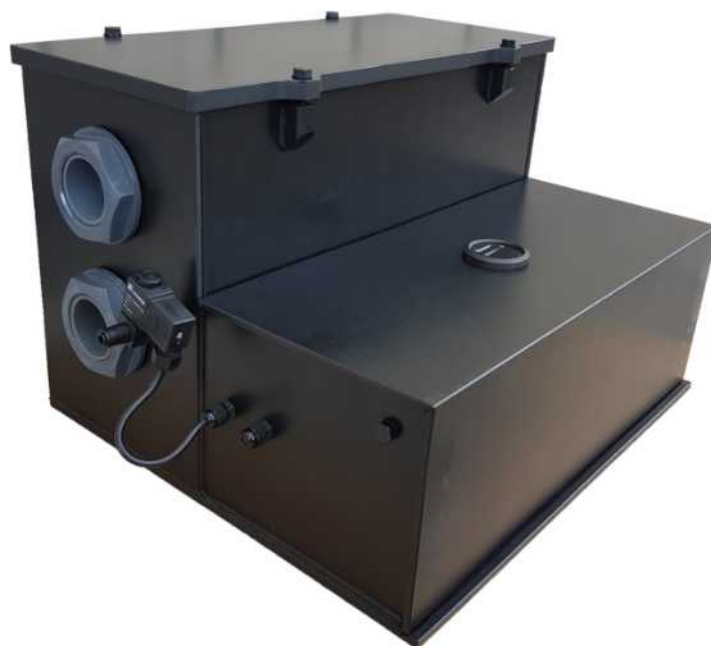


User manual

MNL-ST3 Air humidifier



3L, 5L and 8.5L air humidifiers

(MNL-ST3 3L / MNL-ST3 5L / MNL-ST3 8.5L)

User manual

Table of contents:

1. Introduction	2
2. How does this device work	2
3. Safety instructions	2
3.1. Water supply	3
4. Technical specifications MNL-ST3 series	3
5 Set the installation into operation	4
5.1 Checklist	4
5.2 Set the installation into operation	4
6. Periodic inspection	5
7. To put out of order	6
8. Warranty	7
9. Fault finding	7
10. Contact details	7



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1. Introduction

Thank you for choosing the **MNL-ST3** air humidifier.

The **MNL-ST3** series has been especially developed for the **nebulization of Reversed Osmoses Water or de-mineralised water**. In this manual we will use the expression Reversed Osmoses water from now on. MicroNevel's many years of experience in the humidification of climate controlled areas, under various (also harsh) conditions, has led to the development of the new **MNL-ST3** series. The **MNL-ST3** is robust, reliable, versatile and easy to install and operate.

To ensure a safe, correct and economic use of the **MNL-ST3**, all directions and safety instructions in this manual need to be read carefully. Make sure these instructions are executed as stated.

Please contact MicroNevel or one of their authorized local representatives, if questions remain after having carefully read this manual.

2. How does this device work

In ultrasonic air humidification, a high-frequency oscillation is generated by vibrating elements. This causes the water to move, creating a very fine mist, also known as cold steam. This mist is blown directly into the selected area or the air handling unit, by a mist distribution pipe. Due to the extremely small droplet size of $<5\mu\text{m}$, this mist is absorbed very quickly by the ambient air and distributed throughout the area.

3. Safety instructions

The MNL-ST3 may only be installed, maintained and eventually repaired by individuals who have knowledge of the equipment and are fully qualified to carry out this work. It is the customer's responsibility to make sure his personnel is qualified and instructed.

If in doubt contact your local dealer or representative.

Because the water becomes aerosol, you should pay attention to and take good care of the quality of the water and condition of the filters as well as arrange regular maintenance.

The MNL-ST3 **must** be supplied with Reversed Osmoses Water to avoid any lime or dirt remains in the water tank or lime or dirt remains in the humidifier as a result of which this can precipitate in the room to be humidified. By using Reversed Osmoses Water only, there will be humidified in a responsible manner.

Poorly maintained humidifiers will not function to full capacity. It is therefore important to ensure regular maintenance. Contact your local dealer for the appropriate service intervals suited for your application. Carefully observe local safety regulations concerning working with electrical or electronic equipment connected to a mains supply as well as safety regulations in regards to water and electrical installations.

Avoid any direct contact with parts inside the unit while in action and keep it closed.

When it is established that a risk-free operation of the MNL-ST3 is no longer possible, the air humidifier must be shut off and taken out of service immediately. Then contact your local dealer immediately.

Reasons to do so may include the following:

- The **MNL-ST3** is damaged and/or is not functioning correctly
- Connections or tubes are damaged or leaking

3.1. Water supply



ATTENTION !

The MNL-ST3 **must** be supplied with Reversed Osmoses Water of $\leq 50\mu\text{S/cm}$. When no R.O. Water is supplied, the vibration-elements of the drop-ins will suffer serious damage. Also the live cycle shortens significant. **In this case the guarantee will void for the drop-ins and the valves!**
The use of water of insufficient quality can seriously damage health.

4. Technical specifications MNL-ST3 series

Specifications	MNL-ST3 3L	MNL-ST3 5L	MNL-ST3 8.5L
Dimensions (H x W x D) in mm	550x500x460	550x500x460	550x500x460
Weight "empty"	15,1 Kg	15,8 Kg	19,6 Kg
Weight "in use"	20,1 Kg	21,0 Kg	24,1 Kg
Capacity (litre per hour)	3	5	8,5
Mains	90-260VAC 47-63Hz		
Max. Connected Load (exclusive optional tracing)	290 Watt	430 Watt	720 Watt
Electrical safety conform UL/EN/IEC 62368-1	yes		
Active PFC circuit	yes		
Connection Sizes Air in- & out-let PVC (mm)	50 x 3,0 (mm)	50 x 3,0 (mm)	75 x 3,0 (mm)
Air Inlet (number)	1	1	1
Mist Outlet (number)	1	1	2
Inlet water pressure	0,5 to 5 bar		
Droplet size	Less than 5 μm		
Water Inlet Junction	¼ inch (snelkoppeling)		
Diameter afvoerleiding	¾ inch (snelkoppeling)		
Mist distribution Fan	1 IP68		
Air-velocity uninhibited	85 m³/h		118 m³/h
Noise	Less than 35 dBA		Less than 39 dBA
Admissible area temperature (outlet)	-10°C to +40°C		
Admissible inlet temperature (inlet)	-2°C to +40°C		
MNL-ST3 Ambient temperature	1°C to +40°C		
Control options	NO contact / 0-10V / 4-20mA		

5 Set the installation into operation

Check the following points before the air humidifier is switched on

5.1 Checklist

- Is the humidifier connected to mains supply?
- Are the ball valves (if used) of the air intake and mist exhaust opened?
- Check that the water pipes are connected correctly and leak-free.
- Is there enough pressure in the water supply line? (0.5-5 bar)
- Is the selected control signal the correct one and connected as it should?
- If using tracing, (heating ribbon) is it properly connected?

5.2 Set the installation into operation



PAY ATTENTION !

Before putting the installation into operation mode, it is very important to first thoroughly flush the water pipe, **preventing** any dirt from the water pipe to end up in the solenoid valve.
This execution of this operation is the responsibility of the user.

- Switch the **MNL-ST3** on with the red on/off switch on the right side of the air humidifier.
- The fan will now run for 10 seconds.
- The valve of the water supply opens, after which the water tank will fill.
- The air humidifier is ready to start humidifying.
- Set the humidistat to the desired level, or set the control signal to the appropriate value.
- The fan starts to run and the air humidifier starts to humidify.
- Check whether the unit is humidifying correct, mist must be visible within a few seconds.
- The air humidifier is now operational.

Note: Due to a long(er) period of storage in the empty state, the floaters might stick together somewhat. It may occasionally occur that when the unit is filled for the first time, there is too much water in the tank causing an error in the air humidifier.
When this happens, the unit automatically shuts off and drains excess water.
Switch the air humidifier off when the drain of excess water is completed and then switch it on again after a few seconds. The air humidifier will operate as normal.

6. Periodic inspection



WARNING !

Always remove the mains plug from the wall-socket and close the water supply.

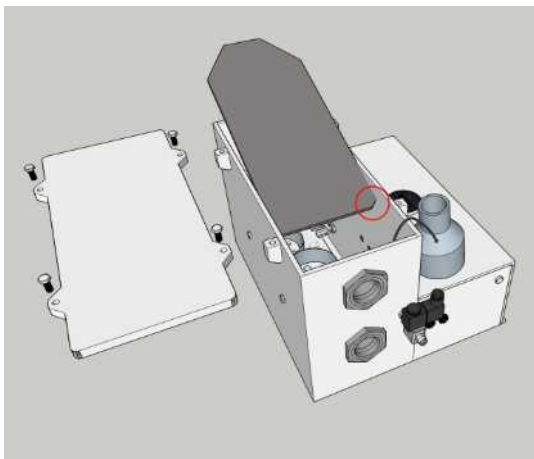
By using osmosis water, the external maintenance of the **MNL-ST3** air humidifier can be kept to a minimum. The maintenance frequency is at least once a year. In case of very intensive use of the air humidifier and/or use in very dusty areas, it is advisable to add an air-filter and regularly check the air humidifier for pollution. Also regularly check the water tank and adjust the maintenance intervals in accordance to your findings. Contact your dealer for questions about different maintenance intervals.

The following topics should be checked during the periodic inspection:

- Check the vibration elements for possible deposits.
- Check the contamination of the water in the water tank.
- Checking and possibly cleaning the water tank.
- Check whether the floats can move freely.

Always first remove the mains plug from the wall-socket and close the water supply.

Loosen the four bolts of the lid and remove the lid. Remove the fan by gently sliding it towards the centre of the tray. The fan including the cord, can be placed on the lower cover, see below. You can now lift the partition out of the water reservoir and the drop-ins with 6 vibrating elements will show. The vibrating elements must definitely not be scratched or damaged otherwise, therefore only clean them with a soft-bristled brush and brush the piezo elements clean. If the water (tank) is contaminated, the water tank must be cleaned and emptied. Check that the 3 white floats in the water tank can freely move up and down freely.



- Then place the partition back in the reservoir.
- Make sure that the small beveled corner of the partition is on the left front of the Humidifier.
- The cord of the fan runs down here. The smooth side of the partition is therefore at the bottom.
- When replacing the fan, make sure that the fan's cord is at the bottom again, in other words as close as possible to the partition.
- Finally, put the lid back on the water tank, place back the 4 bolts and tighten them.
- The water tank will automatically refill when the air humidifier starts up.

What to do if there is no visible mist output?

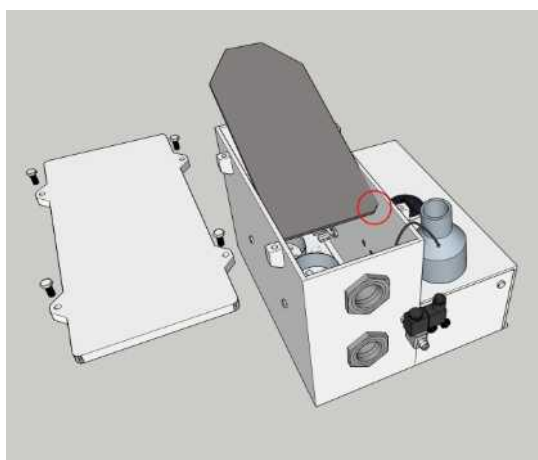
It happens that with very dry air it seems as if there is less mist-yield than with moist air. This happens because the mist (the moisture) is absorbed earlier and faster with dry air than with moist air. In this case, let the room humidify for a few hours and then check again. If there is apparently no mist production visible yet, please contact your dealer.

7. To put out of order

Take the humidifier out of use for an extended period of time

The humidifier is designed for continuous use and does not need to be switched off in the meantime. If the humidifier should unexpectedly be switched off for an extended period (longer than a month) then take the following points into account.

- Remove the mains plug from the wall-socket.
- Loosen the four bolts of the lid and remove the lid.
- Remove the fan by gently sliding it towards the centre of the tray.
- You can now lift the partition out of the water reservoir and the drop-ins with 6 elements each will show.



- Now siphon the water tank empty using a hose or empty it.
- **Note:** leave the vibrating elements in place. The protective rings of the vibrating elements have recesses through which the water automatically runs out of these rings.
- Make sure the water tank is completely empty.
- Dry / blot the last remaining water with a cloth or mop.
- Do N O T place the partition and lid back into / on the humidifier, but keep them separately.

The humidifier can remain switched off for a longer period of time in this setup. Do N O T shut off the power and water supply of the ROW installation, it must remain under pressure.

Put the humidifier back into operation after a longer period of time

Perform a periodic inspection

- Make sure the vibrating elements are clean and not dusted, if so they must be cleaned first.
- The vibrating elements must definitely not be scratched or damaged otherwise, therefore only clean them with a soft-bristled brush and brush the piezo elements clean.
- If the water (tank) is contaminated, the water tank must be cleaned.
- Check that the 3 white floats in the water tank can freely move up and down freely.

Then place the partition back in the reservoir. Make sure that the small beveled corner of the partition is on the left front of the Humidifier. The cord of the fan runs down here. The smooth side of the partition is therefore at the bottom. When replacing the fan, make sure that the fan's cord is at the bottom again, in other words as close as possible to the partition. Finally, put the lid back on the water tank, place back the 4 bolts and tighten them. The water tank will automatically refill when the air humidifier starts up. The air humidifier is ready for use.

8. Warranty

On the MNL-ST3, from the date of purchase, a 12 month warranty is granted on material and construction errors. The total warranty is never longer than the purchase date plus 12 months.

For the drop-ins the warranty is limited to max. 5000 hours and only when using osmosis water of $<50\mu\text{S}/\text{cm}$. Outside the guarantee, damage occurs as a result of operating errors and change(s) of the external / environmental factors.

9. Fault finding

Easily recognize a fault yourself

The humidifier produces (on the eye) less mist.

- Is the air so dry that no mist is visible? (see also point 6). Check to see if the holes of the mist distribution pipe feel moist.
- If an air filter is present.
Is the filter clean?, clean it if necessary so that sufficient air can be drawn in again.
If cleaning helps, it is usually temporary. Please contact your installer.

The air humidifier no longer produces mist.

- Is the humidifier switched on? (the control light on the right side lights up). If not lit, flip the switch.
- Is the red LED on the hour meter lit? If this red LED is on but there is no mist output, then there is most likely a malfunction in the humidifier.
Take the humidifier out of use (see also point 6) and contact the installer.
- Is there a control signal?
Check the position of the humidistat, if necessary turn it up 10% temporarily.
At an industrial control: is the 1-10V (4-20mA) control signal is present.
A minimum control signal of 1V (4mA) is required.
- Is the water supply for the humidifier OK? Check the status of the ROW / water treatment plant.
- Are there ball valves in the air intake and mist outlet pipes? Check that they are open.

If the above does not offer a solution, please contact your dealer.

10. Contact details

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