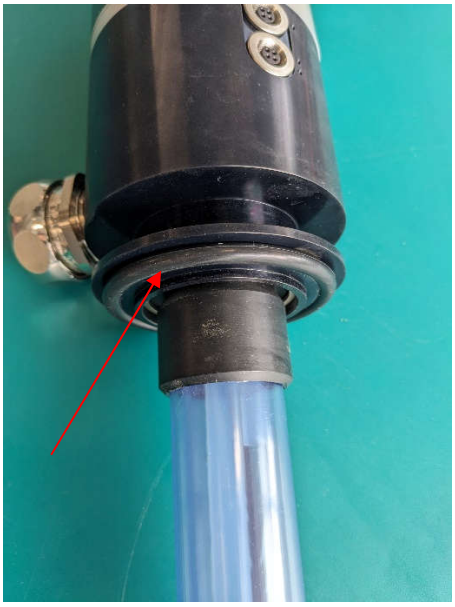
Recommended annual maintenance on the Norhof LN2 dosing system

It is recommended to check both rubber seals of the pump unit on a yearly bases. One is located in the flange connection, the second one is placed underneath the orange safety valve.

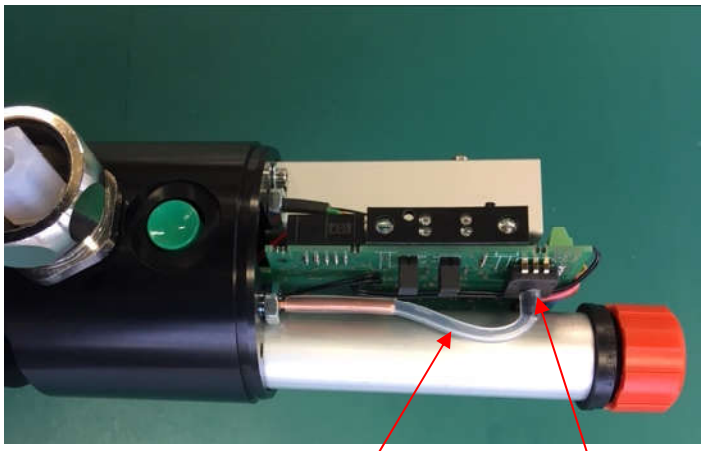


Please check if the rubber is still smooth and free of cracks. If required the seal can be replaced completely.

It is also recommended to defrost the system on a yearly bases using the following procedure:

If you have the feeling that the risepipe or the pressure measuring tube is frozen, you need to warm the pump up to room temperature, and may be dry the rise pipe and measuring tube. Please put the pump in its floorstand, or lay the pump on a table and wait for all ice and condense water has disappeared. You may help a little by warming it with a electrical hairdryer. But be careful. The protection pipe, around the heater and rise pipe, is made of PVC, and will deform at temperatures above 70 C.
After all condense water is disappeared, it could be possible to see if there is an ice block in the rise pipe. The most obvious place is high in the risepipe, almost at the pumphead. So this may not be easy to see.
You may blow with dry air from the fill line into the pump, to blow the last water downwards out of the rise pipe. Off course the air should flow freely through this when the ice block is removed.
Second place of freezing is the pressure measuring tube. (red tube of 3,3 mm for pumps from before 2011, or transparent tube for pumps after 2011)
At the bottom, next to the heater, there is a set of two small resistors mounted in this pressure tube. These resistors evaporate LN2 during pumping, to make sure this pressure tube is fully filled with N2 gas all the time.
If the pump is out of the LN2, condense water may occur here, which will turn into ice when the pump is replaced in the LN2 before it was dried. If done many times, some ice may appear here,

and even some water can go upwards in this tube. To make really sure that all water is out, you may careful blow with dry air from above true this tube. To do this first remove the top cover of the pump, this can be done after removing the orange safety valve (turn left) Now the silicon tube in the pumphead can be removed from the pressure sensor on the PCB. Then you can blow in the silicone tube downwards through this pressure tube. Watch if any water comes out, and blow until there is no water left.



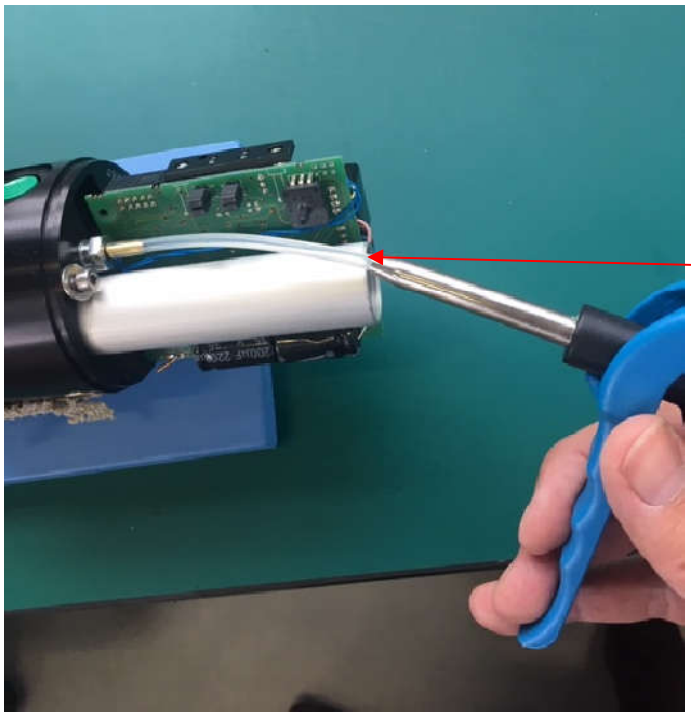
Pressure tube,
detach from sensor

Pressure sensor

pressure measuring tube

protection pipe

risepipe



Blow some dry air through the pressure tube to remove the moisture. **Do not build up pressure in the tube to avoid damage**

NOTE:
When the pump warms up while laying on a table, water can run into the risepipe and/or pressure measuring tube. When laying on a table, it can take quite a long time before all water is dried out.
It is highly recommended to let the pump warm up while it is standing upright, so in its floorstand. In that position most water will fall out, instead of going into the pipes