



Air Humidification & Water Treatment

Updated/New Pages In This Version

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1. Preface

This manual has been written to ensure the safe use, performance and longevity of the equipment and is intended for use by proper trained technical personnel. Airtec® A/S works continuously on research and development. Airtec® A/S reserved the right to amend, without notice, the specifications provided in this document. Airtec® A/S does not guarantee, or accept liability for the accuracy of the information of this document.

Correct use:

The Airtec® A/S humidification system is intended for adiabatic humidification and cooling. Any other use is not considered intended use.

Warranty:

Airtec® A/S parts are warranted for 2 years from date of invoice, against material and manufacturer defects of the product. Failure to observe the manufacturers installation and maintenance recommendations and instructions will invalidate the warranty.

Guide to symbols:



Instructions relating to safety



Instructions relating the correct operations of the product

2. Prior To The Installation

Prior to installation there is a range of relevant steps to consider.

The shipment and delivery note:

Carefully check that the supplied equipment is undamaged at arrival. Do not accept delivery of damaged freight. Report to Airtec® A/S. Check that the content of the shipment matches the delivery note.

Site survey:

Go through the site with relevant customer representative, use the supplied layout drawing, handover document and order confirmation to verify and agree the steps of the installation. Minor changes and adjustments to the installation and layout should be agreed at this stage. Look out for air vents, down draft, turbulence, comfort zones etc. things that can negatively influence the performance of the atomizers and the system, the people on site, products and processes.

Power, water and drain:

Check that all supplies are ready and accordingly with specifications.

Installation and maintenance guide:

Please read Airtec SystemGuide thoroughly before specifying, designing, installing or maintaining an Airtec® A/S system.

Health and safety:

Installation, maintenance, repair work or de-commissioning should only be carried out by proper trained technical personnel. You should make sure to comply with the customers on site guidelines for health and safety. You should ensure that the installation of the equipment complies with that of local regulations.

Any risks or hazards relating to the system, including during installation and maintenance, should be identified by a competent health and safety representative who shall be responsible for introducing effective control measures and relevant guidelines. You should make sure to bring any issues forward to the representative.



Always isolate all supplies to the system before commencing any work on the system.



Secure the system power supply against unintended reconnection during work.

Personnel protective equipment:

An appointed health and safety representative shall be responsible that all relevant guidelines and rules are followed.

Hygiene:

To prevent growth of bacteria, users are required to:

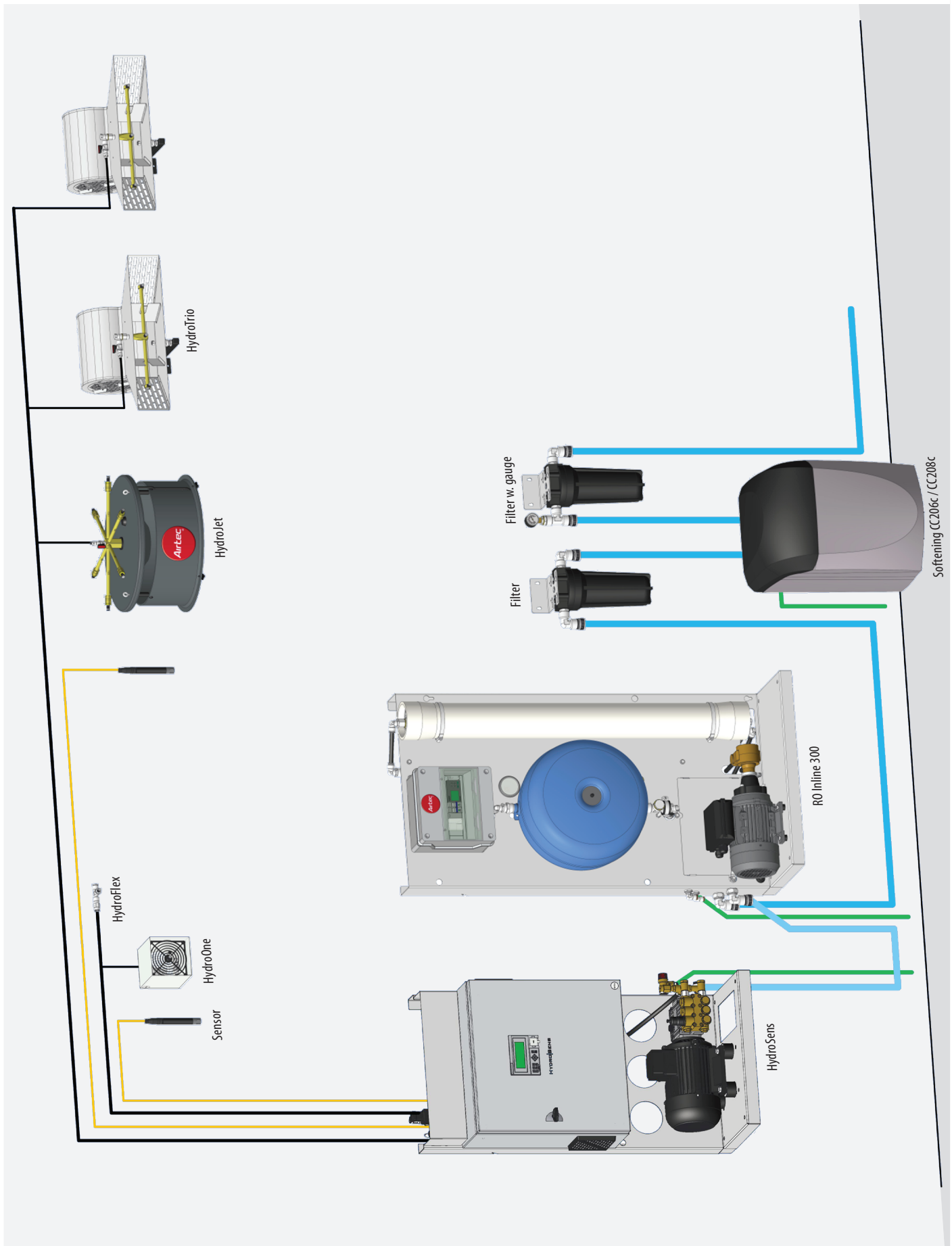
- Carry out risk assessment of the water, implementing an appropriate monitoring and control system
- Avoid water temperatures which favor growth of bacteria
- Avoid stagnant water
- The Airtec® A/S system should at all times be connected to a clean mains water supply.
- A water report should be conducted by the customer from the connection point.
- Customer supplied treated water should be checked for additives or chemicals of any kind.
- The Airtec® A/S system should always be left in operation mode and left powered on at all time.
- Cleaning and disinfection to be performed in accordance with the technical guidelines in this systemguide.



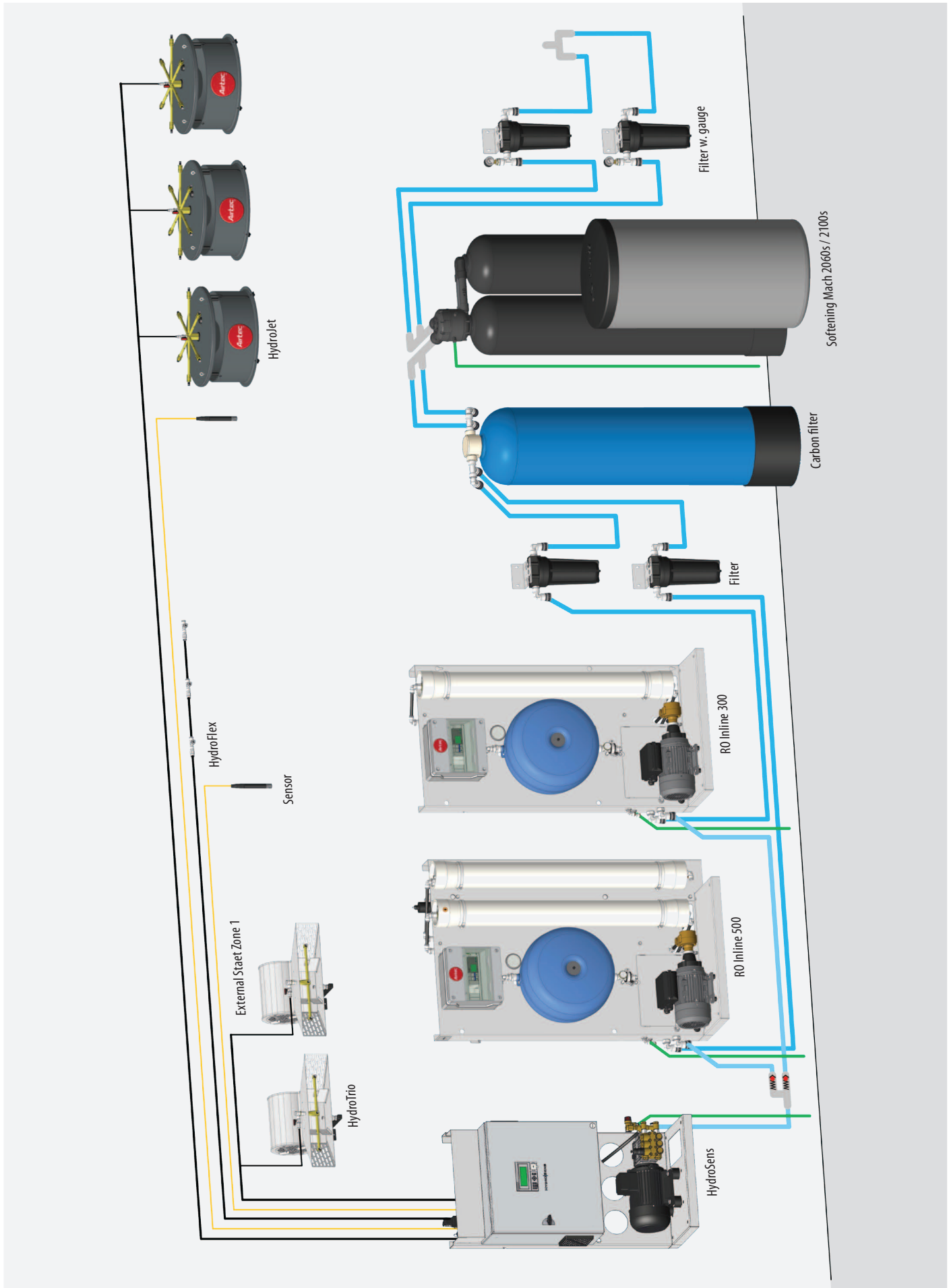
This humidifier should be installed, operated and maintained in accordance with this manual and system user manual

3. General System Overview

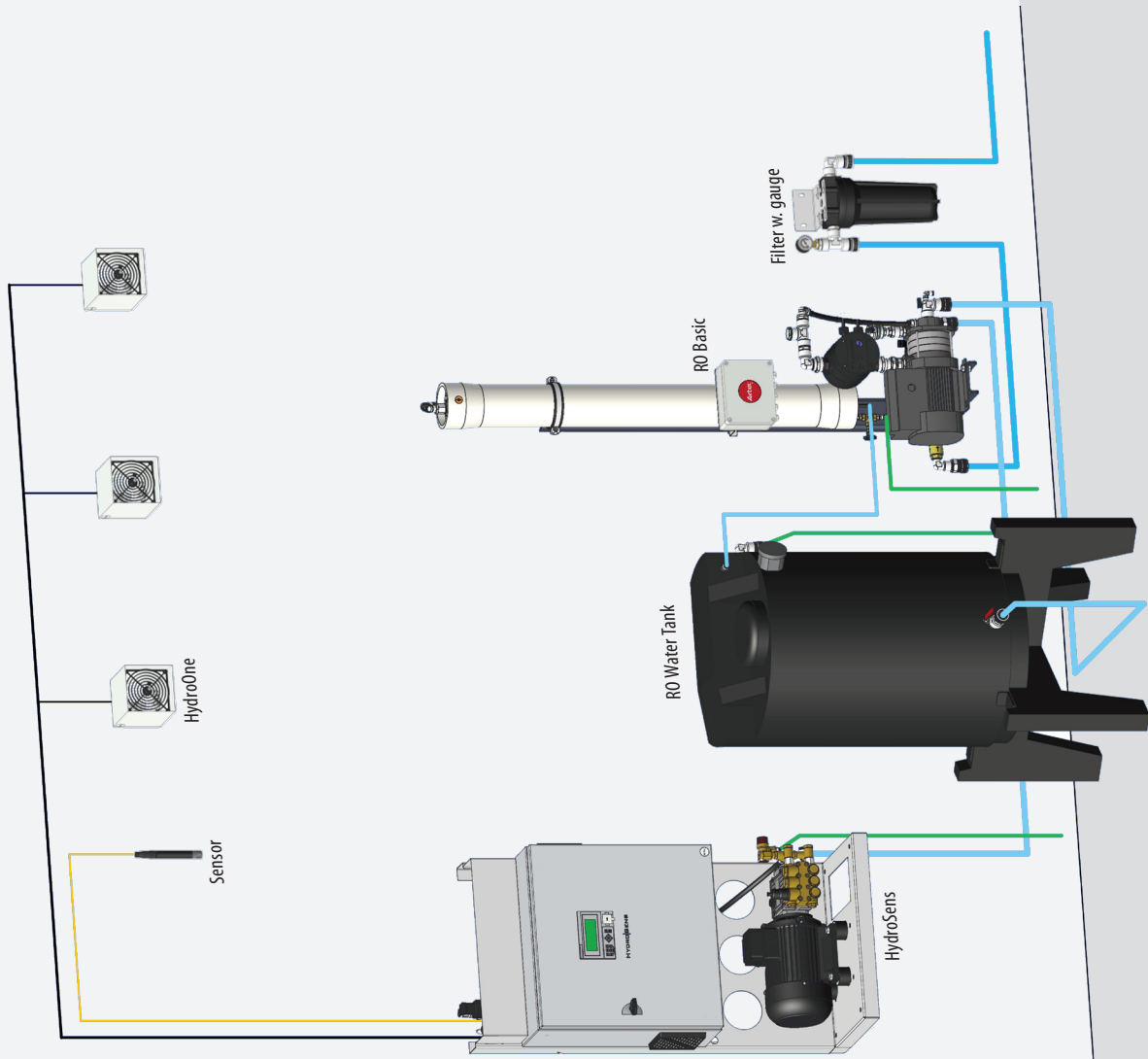
3.1 System setup examples



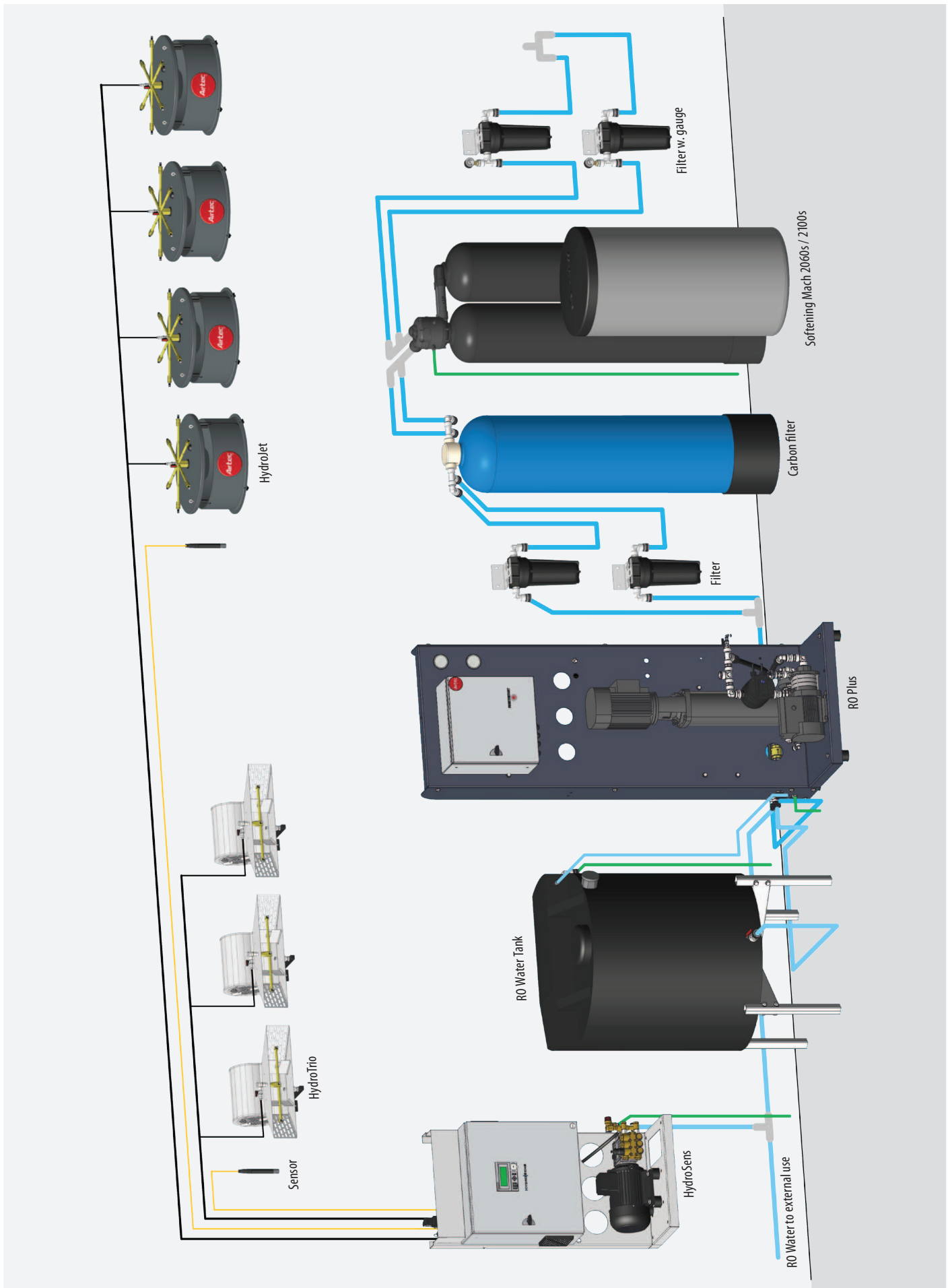
3. General System Overview



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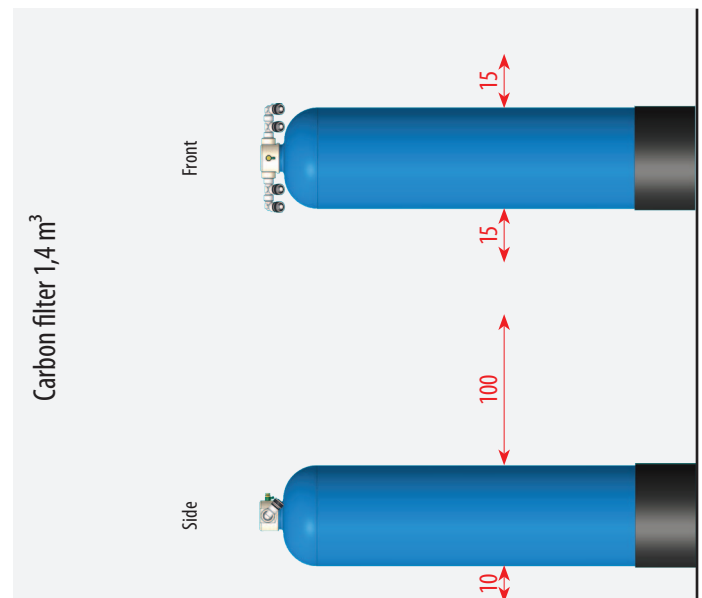
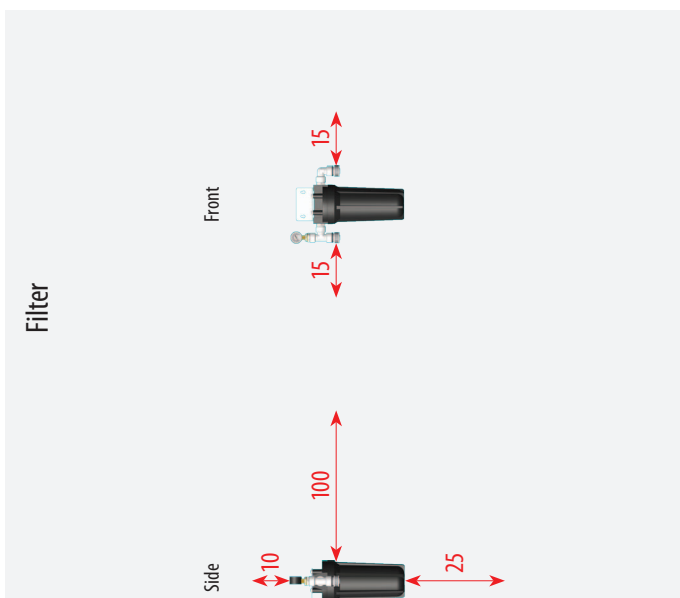
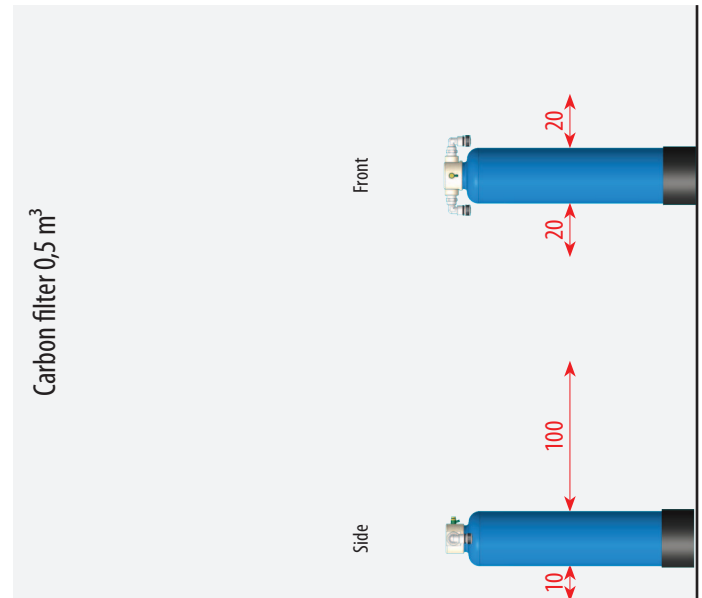
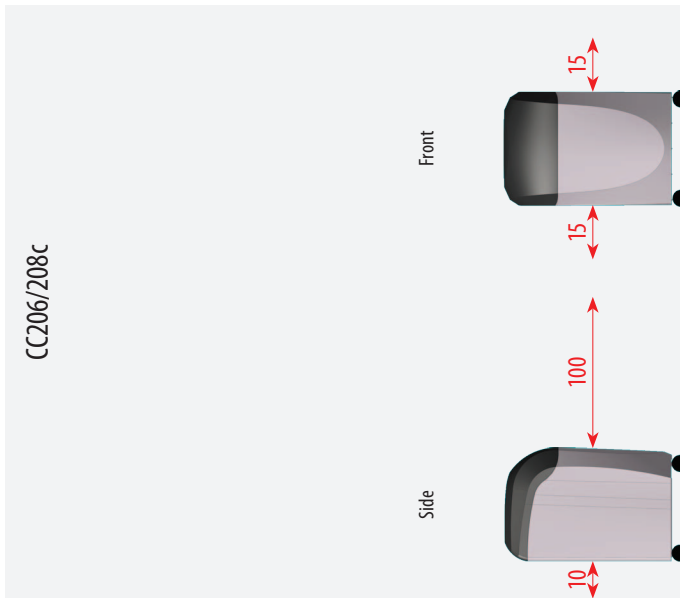
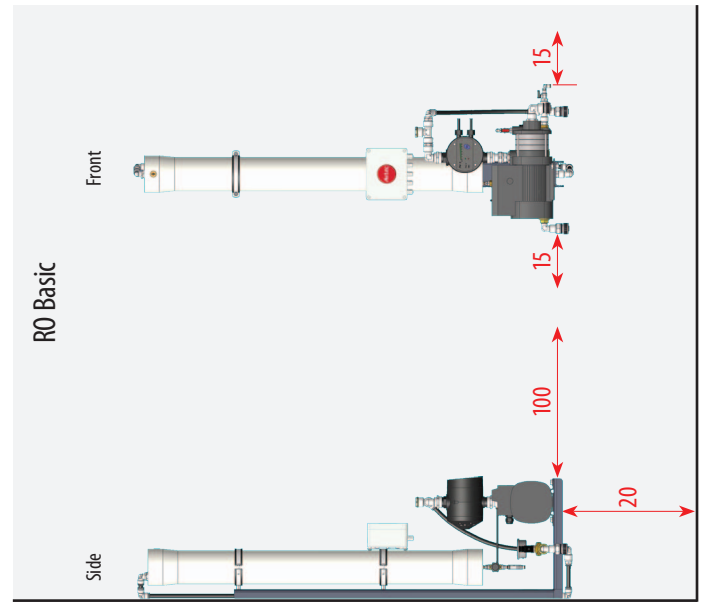
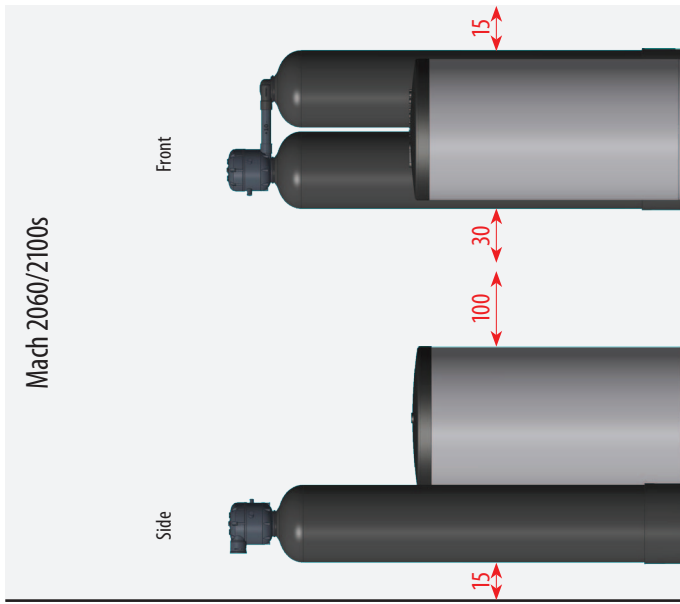


3. General System Overview



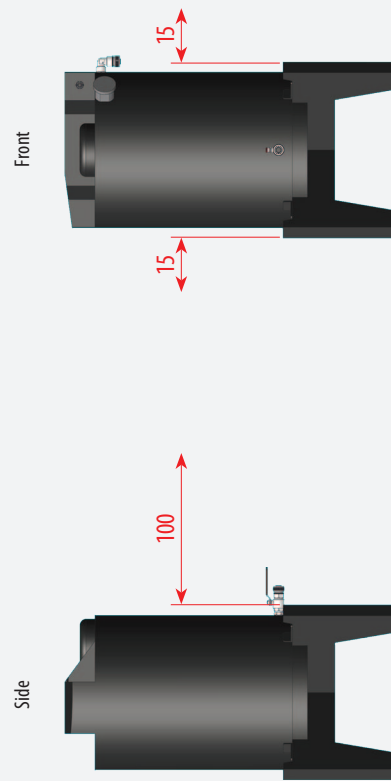
3. General System Overview

Recomended distances in cm

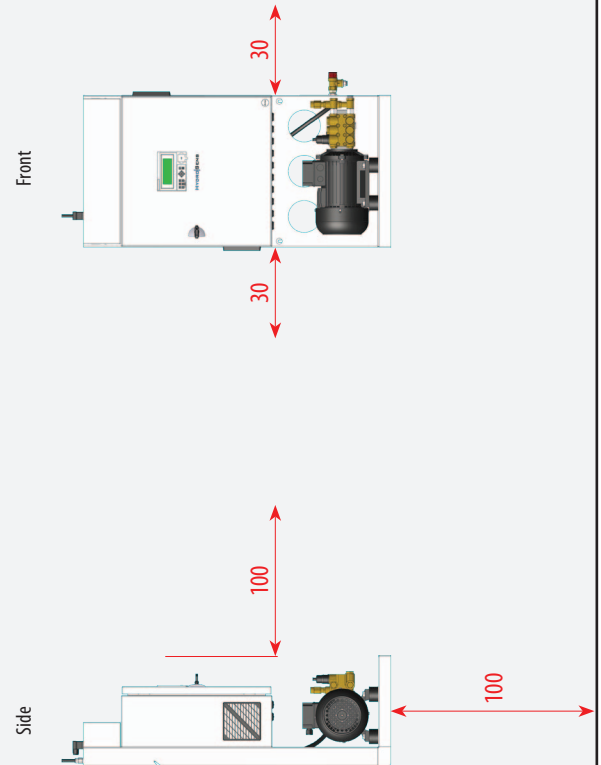


3. General System Overview

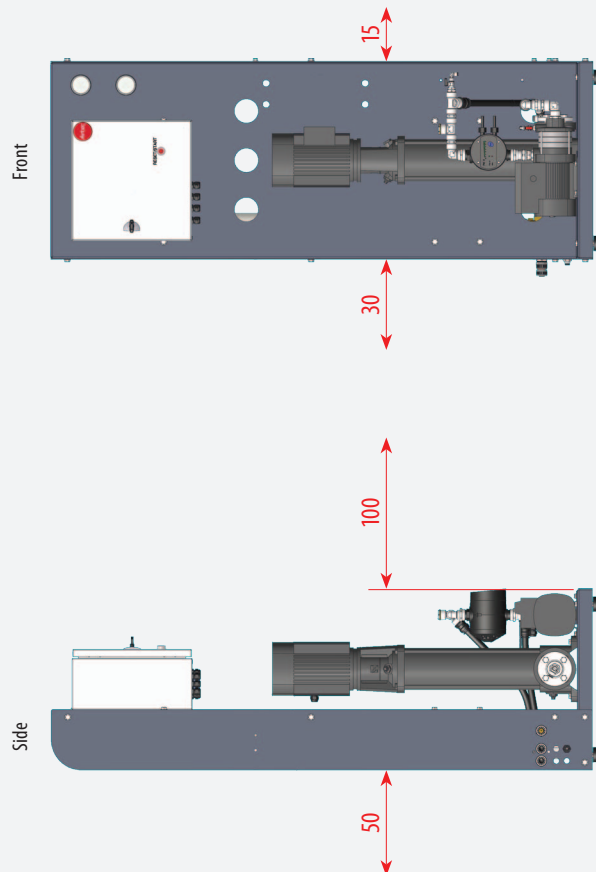
RO water tank



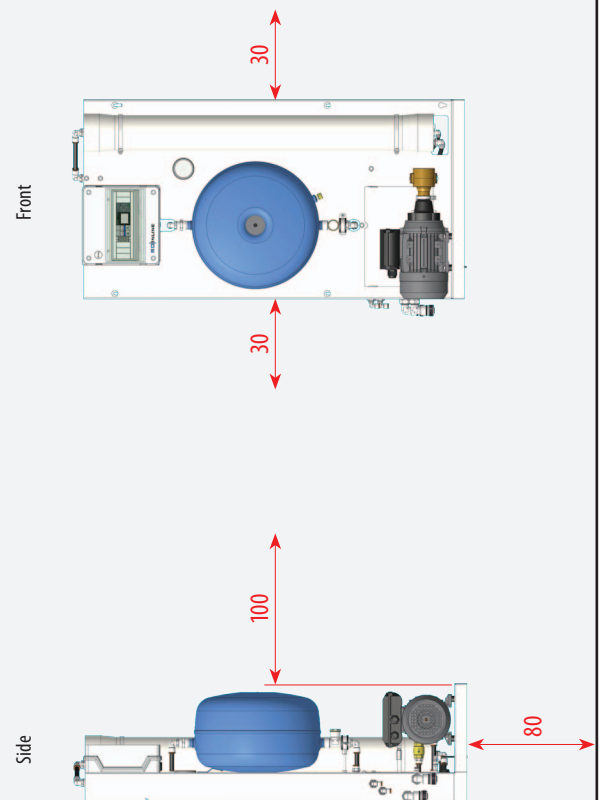
HydroSens



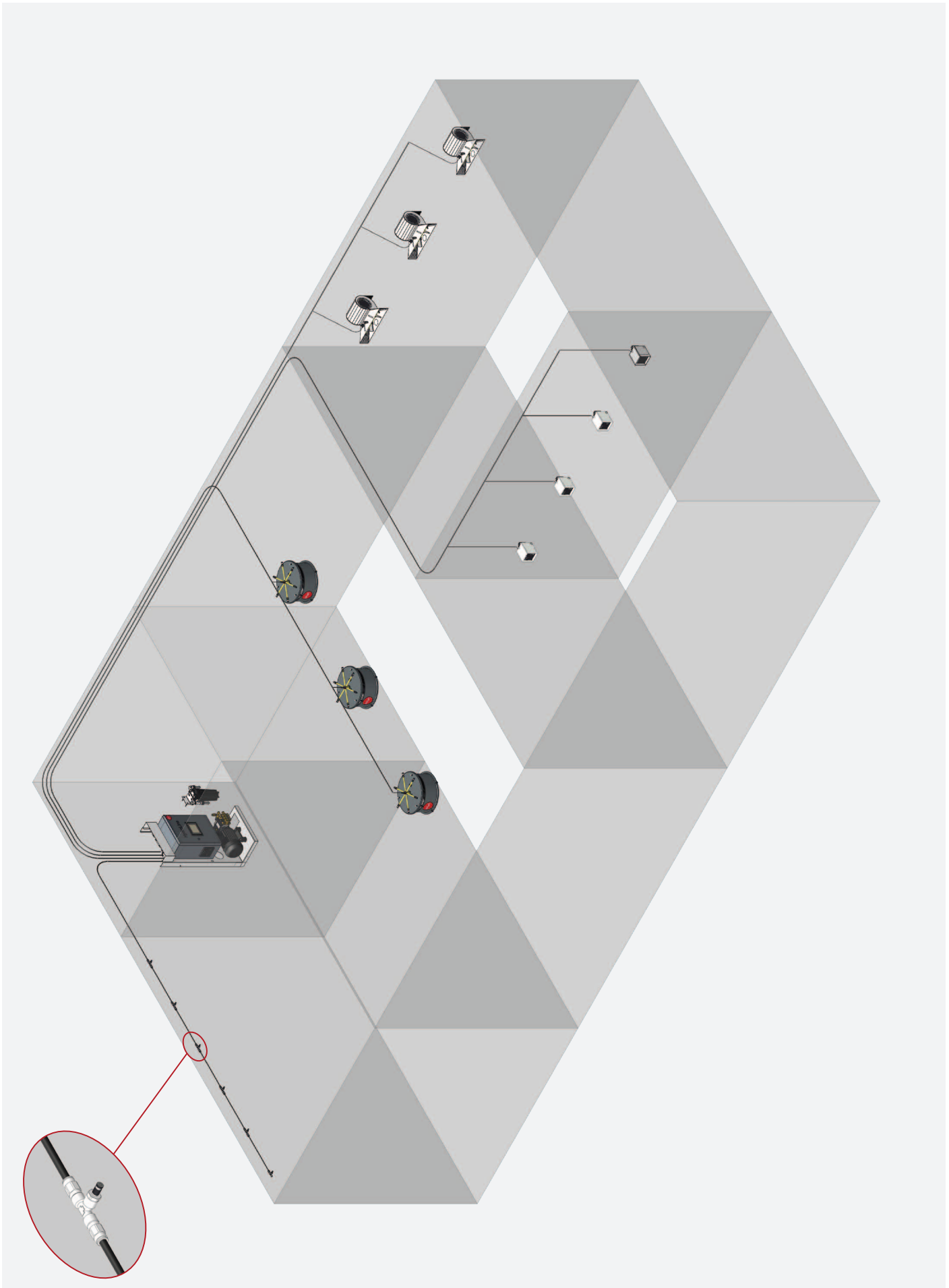
RO Plus



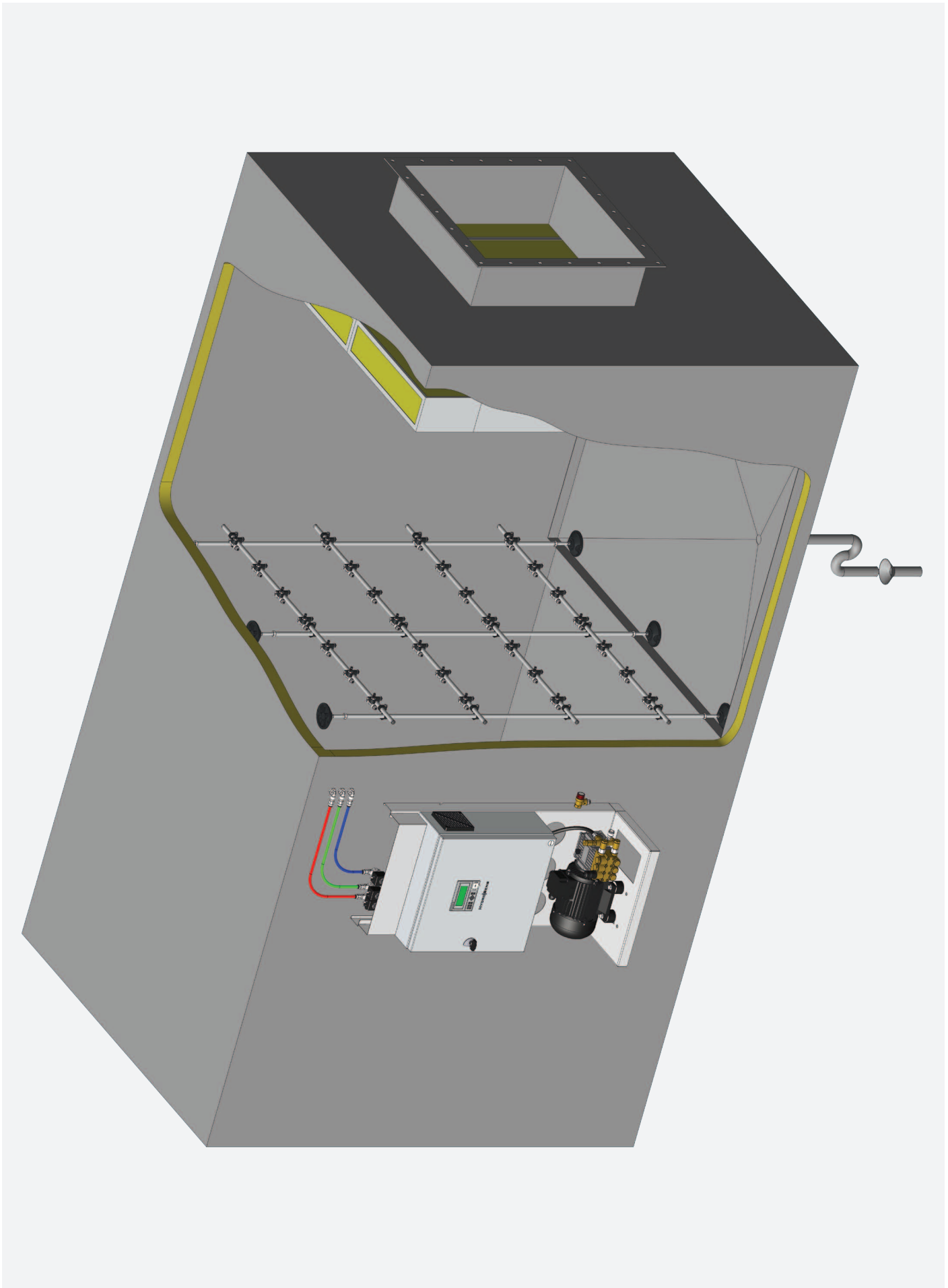
RO Inline



3. General System Overview



3. General System Overview



3. General System Overview

3.2 Component function description

Filter with manometer:

First 1μ filter, is to ensure filtration of particles that can have an adverse effect on our operating components and to help extend the lifetime and operational stability of the entire system.

The manometer is to monitor the supply pressure at full load.



Softener:

Hard water is softened by removing the calcium, magnesium and dissolved Iron it contains. When hard water passes through the softening system resin bed, the calcium and magnesium (hardness) ions are removed through an ion exchanger process, so only softened water passes through.

Once the resin bed fills up with hardness ions, it must be regenerated (cleaned). Salt is used in the regeneration process and restores the resin to a clean state so the process can begin again.

All our softening systems are double system, so it can provide you with soft water at all time.



Carbon filter:

The main purpose is to remove chlorine from the supply water, due to its harmful effect on the RO-membranes, and to remove odor.



Second filter:

Second filter is to prevent bigger particles to pass on to the highpressure system or to the RO, in case of failure on prefilter, carbon or softener.

When looking at the color of this filter during service, it also gives good indication if the interval for prefilter change should be increase.

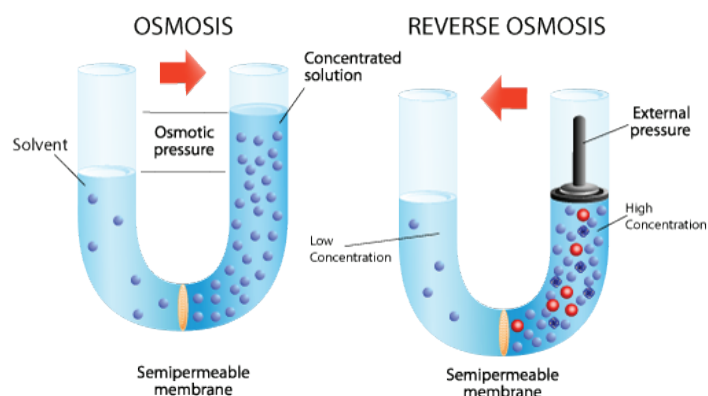


RO (Reverse Osmosis):

Reverse osmosis water purification is capable of removing dissolved salts, and up to 98 % of all solids, bio soil, viruses and bacteria.

Reverse osmosis is a demineralization process of water that relies on a semipermeable membrane to effect the separation of dissolved solids.

Pressure higher than the osmotic pressure, is applied on the water that contains the high-concentrate solution and the water is forced through a membrane to the oppsite side with the low-concentration solution.



UV:

When the UVC rays hit the microorganisms and penetrate the cell, the DNA is destroyed in the cells and prevents the cell's ability to reproduce. This prevents the cell from multiplying itself to an infection in a host. It also prevent growth of biofilm.



3. General System Overview

Hydrosens for InRoom application:

Our high pressure pump and control unit, is designed to supply water to nozzle atomizers at a constant pressure to multiple rooms or steps, constantly adapting to variable flow conditions.

During this process the control is monitoring that all conditions are within the operational spectra, to obtain and maintain operational stability and safe operation.

The pump starts and activates a specific zone valve. When the setpoint is reached, the zone valve deactivates, closing operation mode and activating drain mode to relieve the pressure from the nozzle fast to prevent dripping.

The drain line will retain a pressure of 2,5 bars in the hoses in standby condition. This keeps air out of the pipes ensuring instant atomization from the nozzles when starting up.



Atomizer:

Atomizing is done from an atomizing unit with a certain amount of nozzles or from a flexible “nozzle in a line” installation.

The single nozzle can be applied in different capacity range depending on needs, installation and ambient conditions.



Sensor:

The position of the sensor is determining the control feedback signal to the Hydrosens. It is therefore important to position the sensor correct.



Hydrosens with AHU application:

Our high pressure pump and control unit, is designed to supply water to the air handling unit's spray chamber, at a constant pressure constantly adapting to variable flow conditions.

The control setup makes it possible to adjust the output to be almost 100% linear.

During this process the control is monitoring that all conditions are within the operational spectra, to obtain and maintain operational stability and safe operation.

The output is controlled by multiple solenoid valves.

This is controlled by 2 control loops:

1. The wanted setpoint from the room/BMS system.
2. The output from the humidification chamber.

The PI control is ensuring that maximum saturation and minimum waste is present during operation.



AHU pads:

Our glaspads are designed to ensure the most efficiency saturation of the air, and obtain as close to 100% of the atomized water to minimize waste.

The pads retain water droplets to the humidification chamber.



Would you like to receive the entire Airtec® SystemGuide?

Then go to airtecsolutions.com/tech/systemguide
and fill in the form.

The SystemGuide page is also available in Danish,
Polish, German and Finnish - just choose the language
you need from the menu.

Please note that the SystemGuide itself is only
available in English.

We'll be in touch shortly after that.

We look forward to hearing from you.

Best regards,

The Airtec® Team