

# ZeeWeed\* 1500 Junior

## pressurized ultrafiltration model

### description and use

SUEZ leverages decades of research, development and operational experience to develop one of the most advanced pressurized ultrafiltration membranes on the market, the ZeeWeed 1500.

Versatile and reliable, the ZeeWeed 1500 PVDF chemistry and outside/in flow path makes it ideally suited for turbid, chemically demanding applications in water and wastewater treatment.

### typical applications

The ZeeWeed 1500 Junior (right) is an economical membrane module for small flows that is perfect for:

- Testing membrane compatibility with a water & wastewater stream with minimal investment.
- Running multiple lab or field experiments in parallel.
- Testing compatibility and suitability of a chemical or cleaning process on an existing membrane application.

### general properties

- 0.02  $\mu\text{m}$  nominal pore diameter - for optimal removal of particulates, bacteria and viruses
- PVDF hollow fiber membrane - provides high mechanical strength and chemical resistance
- Outside-in filtration - provides uniform flow distribution and high solids tolerance
- Transparent shell - allows you to see the membrane while it's operating.



### storage and handling

Modules must be stored between 5°C and 35°C (41°F to 95°F). Do not expose the membrane module to sources of heat, ignition, or direct sunlight (UV light).

## product specifications

Model	ZeeWeed 1500 Junior
Nominal membrane surface area	1 m <sup>2</sup> (10 ft <sup>2</sup> )
Weight	5 kg (10 lb)
Membrane material	PVDF
Nominal pore size	0.02 micron
Flow path	Outside-In
Housing material	Clear PVC housing with grey PVC tie-points
SUEZ Part Number	3172218

Module Dimensions & Connections	
Height	908 mm (35.7 in)
Diameter	50.8 mm (2")
Feed & Permeate	1/2" FNPT
Reject	3/4" FNPT
System Integration	Bench top test apparatus

## operating parameters

<b>Performance</b>	
Flow range	0.4– 3.0 m <sup>3</sup> /day (0.1 – 0.5 gpm)
<b>Operating conditions</b>	
Max shell inlet pressure	379 kPa (55 psi)
TMP range	0 - 276 kPa (0 - 40 psi)
Max temperature	40°C (104°F)
Operating pH	5.0 - 10.0
Backwash Frequency	Every ~30 min
Air scour flow	280 L/h (10 cfh)
Backwash flow	35 L/h (0.2 gpm)
<b>Cleaning</b>	
Cleaning pH range	2.0 - 12.0
Chlorine concentration	1,000 mg/L (as NaOCl) <sup>1</sup>

<sup>1</sup> Higher concentrations are possible depending on feedwater and pH.

Contact SUEZ for a sample Process Flow Diagram (schematic) if required.

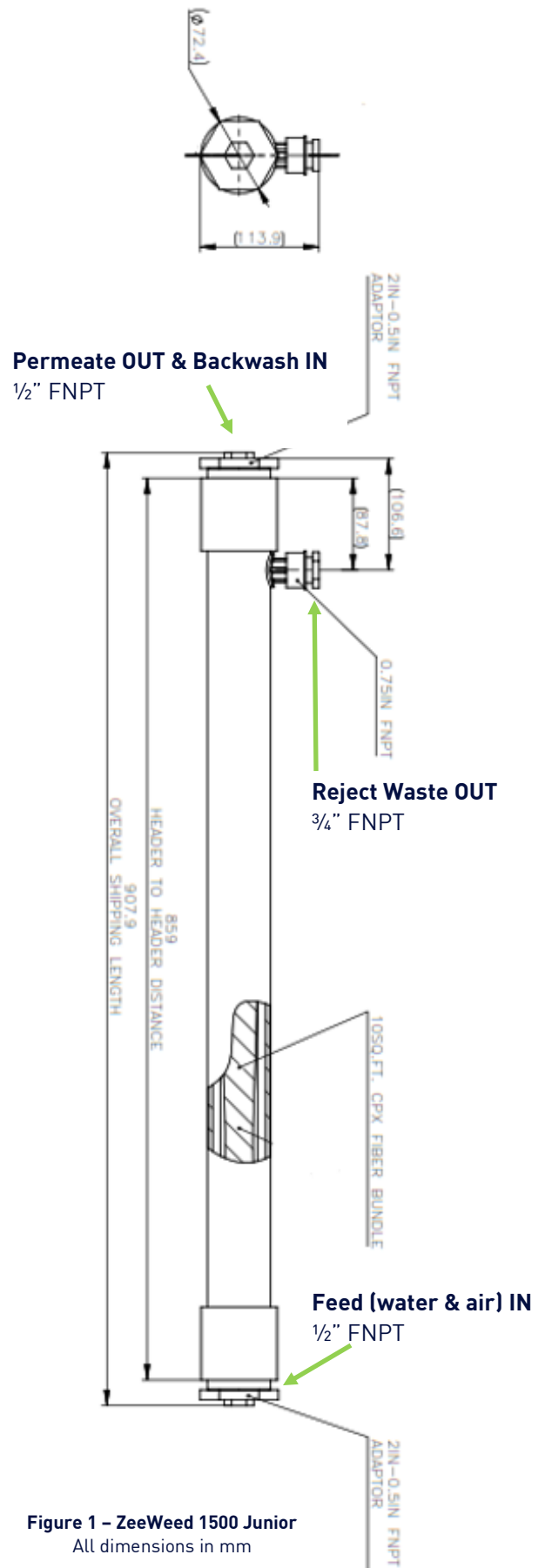


Figure 1 – ZeeWeed 1500 Junior  
All dimensions in mm

## start-up procedure

The following procedure is required to prepare a new ZeeWeed 1500 Junior module prior to use. This procedure only needs to be conducted once for the life of the module.

This procedure is written for a single module. Volumes and flow rates can be scaled linearly with the number of modules being prepared.

### step 1 – install the module

Ensure that the feed, reject and permeate connections (Figure 1) are all completed.

### step 2 – prepare the activation solution

Wear appropriate personal protective equipment for the handling of sodium hypochlorite, such as chemical resistant gloves and safety glasses at a minimum.

**WARNING:** Sodium Hypochlorite is corrosive chemical and an irritant if fumes are inhaled. Always handle in a well-ventilated area.

Prepare a 2000 mg/L (2000 ppm) solution of sodium hypochlorite in a suitable container at a temperature of 35°C to 40°C.

Ensure enough solution is prepared to fill the module and all associated tubing (approx. 3L for a single module set-up).

### step 3 – prepare the flow path to fill the module

Open any valves that allow the solution to enter the module via the feed (bottom) connection.

Open any valves that allow the solution to exit the module via the permeate (top) connection.

Open any valves that to allow the solution to exit the module via the reject (side) connection.

Direct all permeate and reject back to the feed tank to recirculate the hypochlorite solution.

### step 4 – fill the module.

Start the pump and begin the transfer of the hypochlorite solution prepared in step 2 from feed to reject and permeate of the module. Divert the cleaning solution back to the source container. Recommended flow rate for this activity is 35 L/h.

Continue the solution flow until the module is full of hypochlorite solution and the flow is leaving the reject port.

Close the reject (side connection) valve to direct all flow to the permeate.

### step 5 – recirculate solution and soak

Recirculate for 10 minutes.

After 10 minutes, turn off the feed pump and close all valve to isolate the module.

Allow the membrane to soak in the solution for 5 hours. Insulate the module to keep at 35°C to 40°C.

It is optional to recirculate solution for a few minutes every hour.

### Step 6 – drain and rinse

Open all valves and pour the solution into a suitable container for disposal.

Using clean water, rinse the module housing and associated tubing by pumping 6 L of clean water into the feed port and exiting the reject and permeate ports. Repeat up to three times, if needed.

Every effort has been made by SUEZ Water Technologies Solutions to provide current information while preparing this procedure. SUEZ maintains that depictions of methods and/or techniques and use of specific tools and/or apparatus shown within the situations portrayed are accurate at the time of printing. SUEZ accepts no liability for any reliance placed on the information contained herein. Always wear appropriate personal protective equipment required for completing a task.