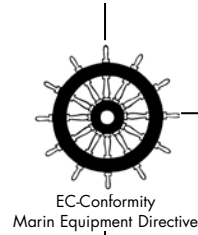


# Nature

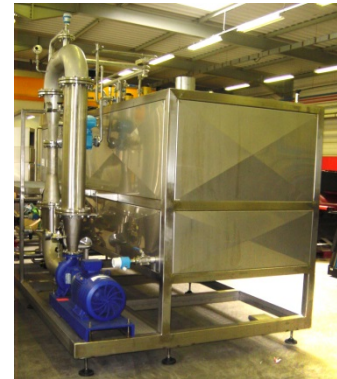
## KLEARSEP™ Skid with Ceramics membranes

Orelis'range:

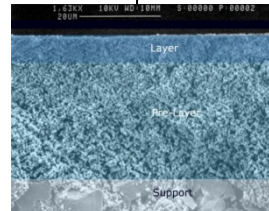


Klearsep™ 500

- Klearsep™ 500: 1 K07 module
- Klearsep™ 1000: 1 K19 module
- Klearsep™ 2000: 2 K19 modules
- Klearsep™ 3000: 1 K37 module
- Klearsep™ 5000: 2 K37 modules



Klearsep™ 5000



Membrane View with SEM

### Membranes and Cut-off

SPECIFICATIONS		
Support:	monolithic TiO <sub>2</sub> – Al <sub>2</sub> O <sub>3</sub>	<b>Microfiltration</b>
External diameter/length:	25 mm / 1178 mm	<ul style="list-style-type: none"> <li>• 1,0 µm • 0,8 µm • 0,45 µm •</li> <li>• 0,2 µm • 0,1 µm HR •</li> </ul>
Number of channels:	7 - 8 - 12 - 19 - 31 - 61	
Membrane code:	X - E - D - W - H - S	<b>Ultrafiltration</b>
Diameter of channels:	6 - 5 - 4,5 - 3,5 - 2,8 - 2,0 mm	<ul style="list-style-type: none"> <li>• 300 kD HF • 150 kD • 50 kD •</li> <li>• 15 kD • 8 kD •</li> </ul>
Membrane:	ZrO <sub>2</sub> / TiO <sub>2</sub>	
Bursting pressure:	80 bar	<b>Nanofiltration</b>
Service pressure:	10 bar	<ul style="list-style-type: none"> <li>• 5 kD • 1 kD •</li> </ul>
pH range:	0 – 14	
Sterilization:	121°C	
Sterilization by oxidants:	yes	
Solvents / radiations:	unaffected	
Temperature limitation:	up to 150°C	



K07 Module

### Modules

GEOMETRY OF MODULES		Number of channels - Membrane area in sqm					
Modules	Quantity of membranes	7	8	12	19	31	61
Module K07	7 membranes	1,12	1,4	1,4	1,75	2,31	3,15
Module K19	19 membranes	3,04	3,8	3,8	4,75	6,27	8,55
Module K37	37 membranes	5,92	7,4	7,4	9,25	12,21	16,65

Our job: design, produce and sell organic and ceramic membranes, Pleiade®, Kleansep™, Klearsep™, Flosep and Persep™ range, plan type, Spiral, Tubular Multichannel, and hollow fiber.

Innovative in the fields of purification and recycling of effluent, Orelis Environnement is an expert company in membrane separation technology, in the service of your processes.

We are working with installers and OEMs to implement our solutions membranes.

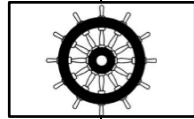
Our teams are at your disposal to find the solution to your needs.

## Oily Water Separator

The best membrane treatment for Bilge Water

### Green Technology

- Continuous treatment of bilge water with less than 5 ppm of hydrocarbons at the outlet
- No chemical in compliance with Marpol Convention (no solid waste to evacuate)
- Treated water quality independent of ship's rolling and pitching
- Bilge water concentration to reduce the volume down to 5% of the original.



0062 - 06  
EC-Conformity  
Marin Equipment Directive

### Advantages

- Fully automatic unit : permanent liability of the treatment
- Small footprint: Height 2000 – Length 1400 - Width 1000 mm
- All components are marine grade and corrosion, chemicals, temperature resistant
- Easy to use: no need of human supervision during process, automatic membrane cleaning, easy start-up procedure
- Safety equipped: treated water is monitored, registered and easy to check at any time. Optional: black box including GPS monitoring.

### Implementation

- Install an equipment preserving the environment forward Marpol regulation
- Operate a compact, simple, reliable and easy-to-use separator
- Optimize maintenance and waste treatment costs
- Cost Guard Approval number: n°162.050/9051/0



**Klearsep™ 2000** is certified from 1500 to 2500 liters per hours (6 to 11 gpm) by the Veritas Office in accordance with International Maritime Organization (IMO) MEPC 107 (49).



Monitoring

### ORELIS ENVIRONNEMENT SAS

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30340 Salindres – France  
T: + 33 (4) 66 85 95 36 – F: 33 (4) 66 30 77 59  
[www.orelis.com](http://www.orelis.com)

## Klearsep™ 2000

Technical Data

### CHARACTERISTICS

Size:	2000 x 1400 x 1000 mm
Capacity:	(1.5 m <sup>3</sup> /h) 2.0 m <sup>3</sup> /h (2.5 m <sup>3</sup> /h)
Power:	12 kW
Weight:	600 kg



K19 Module

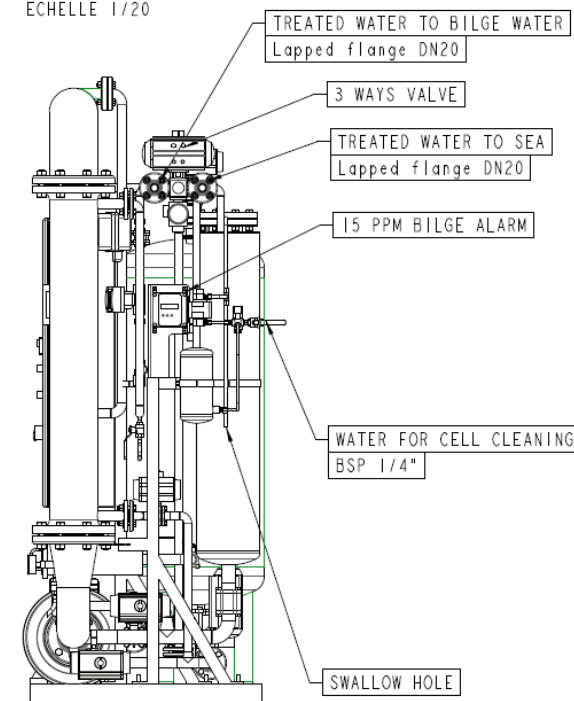


Klearsep™ 2000



15 ppm Oil alarm monitor

ECHELLE 1/20



Klearsep™ 2000 On-board