DALRADA
Climate Technology

SUSTAINABILITY SOLUTIONS

# CALIPSEA

# ECOLOGICAL WATER DESALINATION CONTAINERS

## High-quality drinking water from seawater

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POWERED BY **AQUATHEA**

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# DESALINATION AS A PILLAR OF SUSTAINABILITY

## Where natural ingenuity meets technological innovation

Mangroves thrive in salty, brackish environments using complex biological mechanisms to filter salt and preserve freshwater. Inspired by this natural brilliance, Dalrada's Calipsea containers harness advanced desalination technology to replicate nature's solution—transforming seawater into life-sustaining freshwater. This synergy between biology and engineering shows how innovation rooted in nature can solve one of humanity's most pressing challenges: clean water access.

## Environmental Regeneration

Just as mangroves restore balance and reduce salinity in coastal ecosystems, Calipsea delivers clean water while preserving the natural equilibrium. Our sustainable approach minimizes environmental impact, helping communities and industries reduce their water footprint—without harming the oceans we depend on.

## Resilience in Extreme Conditions

Mangroves endure salt, storms, and flooding—thriving where few plants can. Inspired by this resilience, Calipsea containers are engineered to operate reliably in the world's toughest conditions. From drought-stricken zones to demanding industrial sites, our modular systems deliver continuous, high-quality desalination wherever it's needed most.

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# INTRODUCING CALIPSEA: HIGH-TECH, LOW-IMPACT WATER SOLUTIONS

## The Gentle Revolution in Desalination

**Calipsea is redefining desalination by fusing cutting-edge engineering with environmental stewardship. This hybrid technology—combining assisted evaporation with advanced distillation—delivers:**

- **Direct production of drinking water with ultra-low energy use (5 kWh/m³)**
- **Treatment of brine waste from reverse osmosis with up to 94% water recovery**
- **Sixfold reduction in marine discharges, protecting coastal biodiversity**
- **Recycling of salt residues into resources for industry, agriculture, and energy**

Recovering “atmospheric” water essentially means to convert humidity in the air into water—naturally—thanks to condensation.

## Smart Solutions for Coastal Region

**Rethink water. Preserve the ocean.**

Tailored for islands, coastal towns, tourist resorts, and industrial sites, Calipsea’s modular design scales to meet any need. Each installation transforms how we manage water—turning waste into value and scarcity into sustainability.

With **Calipsea**, every drop is respected, every resource is reused, and every project is a step toward a cleaner, bluer planet.

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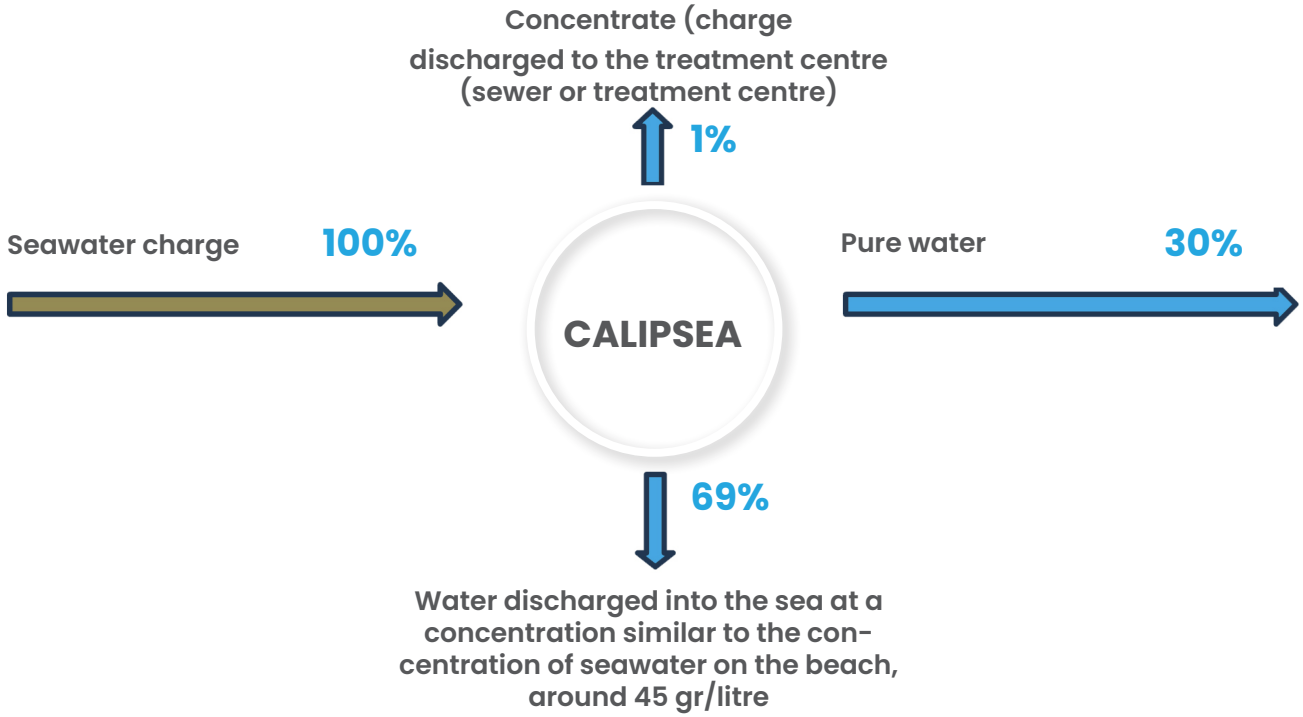
# THE CALIPSEA SOLUTION

## Inspired by nature, engineered for sustainability and resilience

- **Dual-Purpose Innovation:** Produces drinking water from seawater and treats brine waste from reverse osmosis systems
- **Exceptional Water Efficiency:** Achieves up to 94% water recovery and reduces liquid waste volume by a factor of six
- **Environmentally Responsible:** Minimizes toxic discharge, regulates salinity, and protects marine biodiversity
- **Energy Efficient:** Consumes just 5 kWh/m³—competitive with reverse osmosis, without aggressive chemicals or membranes
- **Simplified Maintenance:** Resistant to clogging, highly tolerant to suspended solids and turbid water
- **Resource Recovery:** Concentrated salts are repurposed for use in chemical, food, agriculture, and energy sectors
- **Modular & Adaptable:** Ideal for islands, resorts, factories, and remote locations; integrates easily with existing RO systems
- **Ethical & Future-Ready:** Inspired by the natural water cycle, aligned with circular economy goals and CSR commitments



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# BUILT TO GLOBAL STANDARDS, TAILORED TO YOU

## Compliance, customization, and control—designed for real-world performance

- **Standards-Compliant:** Calipsea systems are designed in accordance with ISO 24510 (service quality for drinking water) and ISO 46001 (water efficiency management).
- **Optimized Water Quality:** Mineralization and pH adjustment are typically integrated into our systems to ensure safe, balanced drinking water. These specifications are finalized in consultation with each client at the time of order.
- **Multilingual Remote Monitoring:** Our intuitive interface can be translated into the language of your choice, allowing full access to real-time operating data, both locally and remotely.

# TECHNICAL DOCUMENTATION

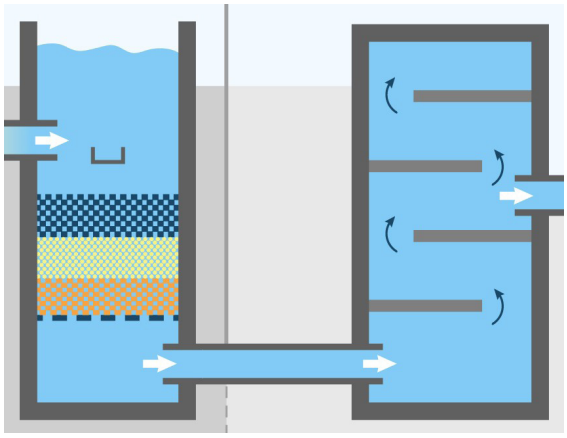
## Efficient Seawater Intake & Pre-Treatment for Optimized Desalination

### System Organization & Components

- **Water Origin:** Drawn directly from the sea at shallow depths
- **Configuration:** Direct pumping via a short pipeline, with no pre-treatment required
- **Advantages:** Quick and simple installation—no majorworks or complex infrastructure

### Pre-Treatment: Screening

- **Function:** Captures and retains larger solid particles to protect downstream equipment
- **Equipment:** Mechanical or static screen systems
- **Filtration Range:** Adjustable screens with a fineness of 1 to 5 mm, based on site requirements



### Pre-Filtration

- **Function:** Reduces suspended matter such as sand, silt, and organic debris
- **Technologies:** Fine-mesh sieves; Custom filter cartridges
- **Maintenance:** Designed for ease of use, with manual or semi-automatic cleaning options to ensure consistent performance

## Main filtration: self-cleaning filter

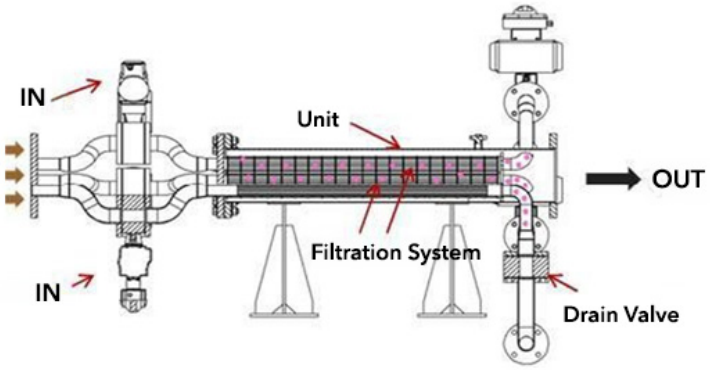
- **Function:** Removal of microscopic particles for clear, reusable water
- **Technology:** Fully automated non-return filter
- **Long life and low maintenance**

## Disinfection (optional)

- **Objective:** To guarantee clean water for subsequent cycles
- **Possible technologies:**
  - ◇UV: Elimination of bacteria and viruses
  - ◇Chlorination: Prolonged effectiveness for storage
  - ◇Ozonation: powerful, environmentally-friendly disinfection

## Treated water storage features:

- 316 L stainless steel tanks (patented design)
- Enhanced protection against secondary contamination
- Advantages: Suitable for large volumes, up to 500 m³/day



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### Distribution:

- Equipment: High-efficiency pumps.
- Automation to adjust pressure and flow as required

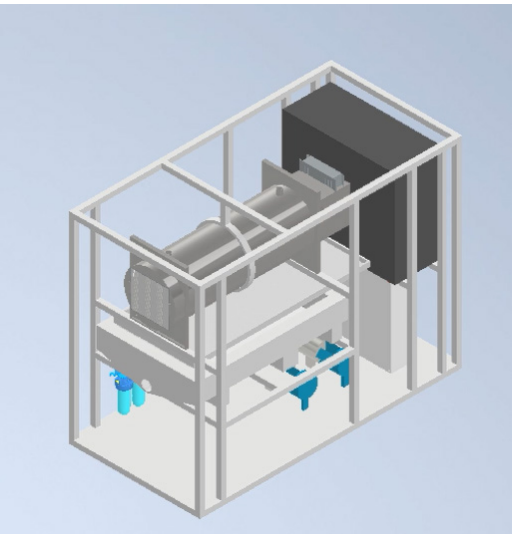
### Standards and certifications:

- Directive 2006/42/EC: Safety of machinery

| Specification | CALIPSEA 1 (2,000 L/day) | CALIPSEA 10 (10,000 L/day) | CALIPSEA 50 (50,000 L/day |
|---|---|---|---|
| Water Production | 2,000 Liters/day | 10,000 Liters/day | 50,000 Liters/day |
| Air Filter | G4 Electrostatic Anti-bacterial | G4 Electrostatic Anti-bacterial | G4 Electrostatic Anti-bacterial |
| Water Filtration | Patented cartridge and UV | Patented cartridge and UV | Patented cartridge and UV |
| Dimensions (W x D x H) | 330 x 110 x 170 cm | 600 x 240 x 250 cm | 600 x 240 x 250 cm |
| Net Weight | 945 kg | 7,400 kg | 11,100 kg |
| Power Supply | 400-3-50 | 400-3-50 | 400-3-50 |
| Power Consumption | 1 to 3.4 kWh | 2.1 to 21 kWh | 2.1 to 33 kWh |
| Refrigerant | R32 / R290 | R32 / R290 | R32 / R290 |
| Condenser Coil | Brine treatment | Brine treatment | Brine treatment |
| Evaporator Coil | Stainless steel - Food grade | Stainless steel - Food grade | Stainless steel - Food grade |
| Evaporator Fan | 500 to 3,600 $Nm^3/h$ | 1,100 to 19,800 $Nm^3/h$ | 1,100 to 39,600 $Nm^3/h$ |

## WATER TREATMENT

- Prefiltration at 150 µm.
- Activated carbon filter.
- Fine filtration at 50 µm.
- UV lamp for disinfection



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# CERTIFICATIONS AND PERFORMANCE OF FILTRATION SYSTEMS

Dalrada atmospheric water generators are equipped with patented filtering systems developed in collaboration with renowned laboratories such as the Institut Pasteur, CNRS, LA FSBE, and RAMS Institut de R&D en Santé au Travail. These filters ensure the effective elimination of a wide range of contaminants, meeting the highest standards.

| Heavy metals | PFAS (Per- and polyfluoroalkyl substances) | Other contaminants |
|---|---|---|
| Lead: 99.99% | High elimination rate | Pesticide residues: 98% |
| Manganese: 98.99% | | Organic solvents |
| Copper: 99% | | Chlorinated hydrocarbons |
| Cadmium: 99.5% | | Volatile organic compounds |
| Iron: 100% | | Bisphenol: 99% |
| Radium: 99% | | E.coli |
| Nickel: 98% | | Medicinal wastex |
| Uranium: 99% | | |
| Ammonium: 98% | | |

## CONTACT DALRADA

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