MAXH2O SOLUTIONS FOR BRINE MINIMIZATION

The Problem

All desalination technologies produce the same byproduct: concentrate or brine, which is one of the greatest challenges currently facing the water treatment sector.

The Solution

To address these critical issues, IDE offers a unique technology for continuous brine treatment called MAXH2O, designed to maximize the mechanical potential of the RO process.

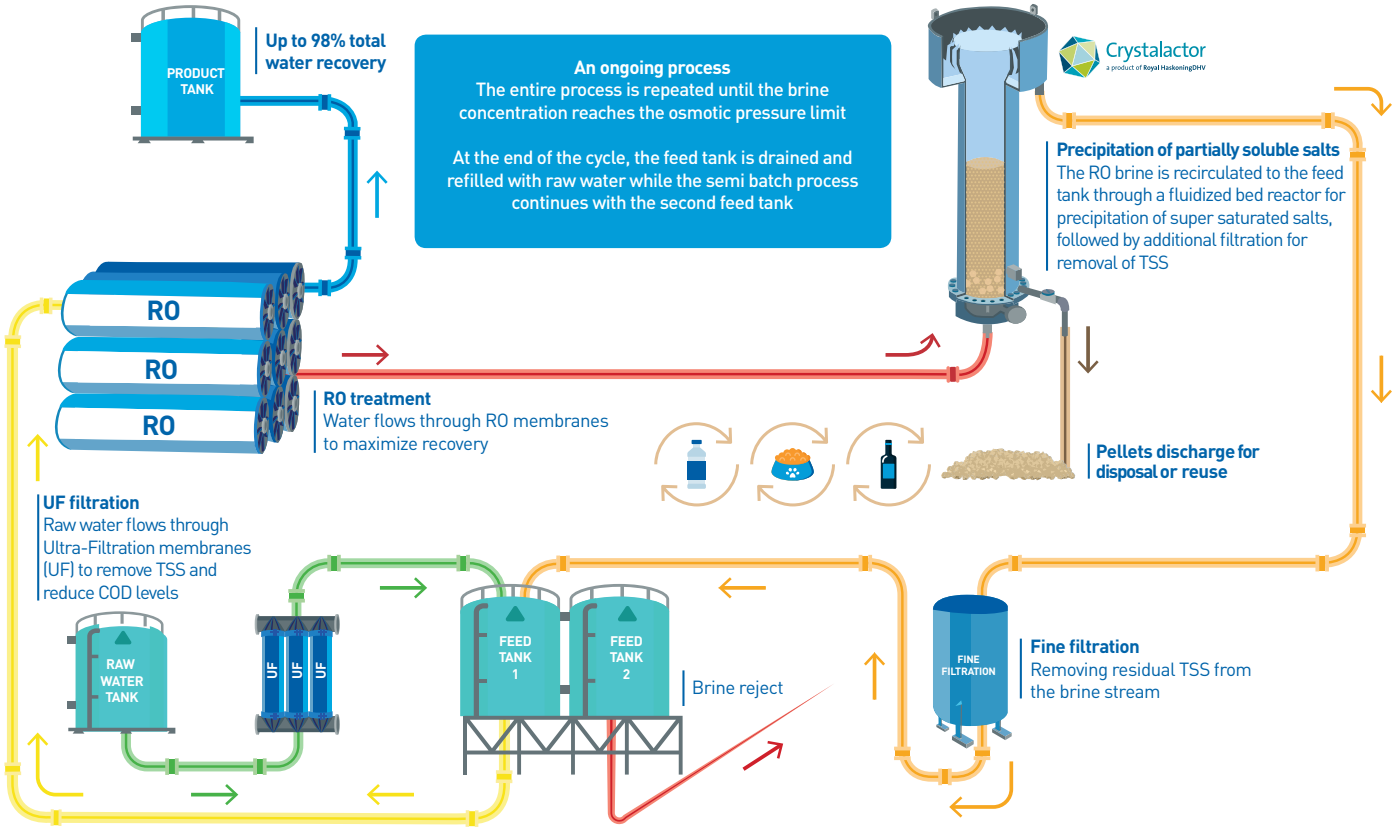
IDE Technologies | Your Water Partners

Desalinating Water Since 1965 with Excellence

MAXH2O Desalter for Brine Minimization

The MAXH20 Desalter is a semi-batch RO system with an integrated salt precipitation cycle for continuous desaturation of the brine. This process allows pushing the RO process to its limit, while avoiding the limitation of membrane scaling and maintaining constant brine treatment.

Technology Highlights



Why choose MAXH2O Desalter?

If you need to minimize brine with high scaling tendency and low to moderate salinity, the MAXH20 Desalter is the solution for you.

- **High recovery rates** - Achieves the industry's highest recovery rate, of up to %98
- **Economical** - Enables optimized OPEX, by reducing chemical consumption and minimizing ongoing maintenance
- **Adjustable** - Can be designed into new brackish & wastewater plants or retrofitted into existing BWRO facilities
- **Reliable & Robust** - Allows continuous operation and avoids biofouling and scaling
- **Flexible** - Tolerates variable feed water qualities, concentrations and flows
- **High quality product** - Meets environmental regulations for discharge or reuse

Performance Table

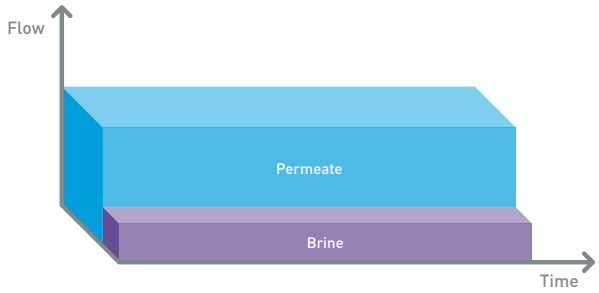
	Alternative Solutions	MAXH2O
Pretreatment stages	Intensive	Minimal
RO Stages	Typically	1
Total Recovery	Limited with super-saturation typically 50-70%	Up to 98%
Feed water TDS	Not flexible, designed for specific TDS range	Very flexible with TDS feed flow
Bio-fouling tendency	Higher risk of bio-fouling	High resistivity to bio-fouling due to changing salinities
By-Products	High quantities with low solid content	Low quantities with high solid content
Chemicals	High	Low
OPEX	High	Medium

MAXH2O Pulse Flow RO for Brine Minimization

Pulse Flow RO (PFRO) is a high recovery RO process that replaces conventional RO desalination design. The PFRO process discharges brine periodically at high velocity and generates %100 water recovery between brine ejections.

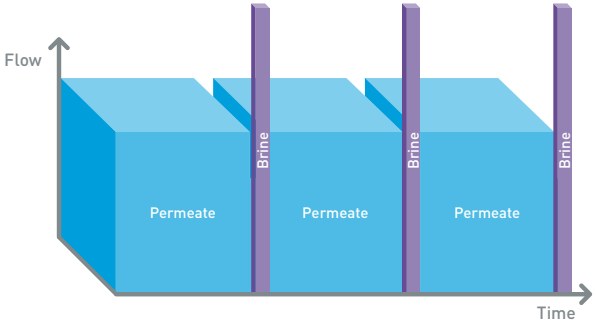
Technology Highlights

Conventional RO Process



Brine flow is the minimum permitted by the membrane manufacturer. The flow is continuous and uninterrupted.

Pulse Flow RO



Brine flow discharges as pulses in a very short time at the maximum flow allowed by the membrane manufacturer.

Why choose MAXH$_2$O Pulse Flow RO?

- **Simple** - Highly efficient treatment in a single stage
- **Economical** - Cost-effective compared to other high recovery solutions
- **High recovery rates** - Achieves extremely high recovery rates
- **Reliable** - Allows continuous operation and avoids bio-fouling and scaling
- **Adjustable** - Can be designed into new brackish and wastewater plants or retrofitted into existing BWRO facilities
- **Flexible** - Operates with variable feed water qualities, concentrations and flows

Performance Table

Constituent	Feed Water	CeraMem Ultrafilter Filtrate	Double Pass RO Permeate	Removal Efficiency
Free Oil (> 20µ), ppm	100	<0.2	Non-Detect	>99.9%
Total Suspended Solids, ppm	100	<0.2	Non-Detect	>99.9%
Total Hardness, ppm as $CaCo_3$	236	<10	Non-Detect	>99.9%
Calcium, ppm	65	<3.2	Non-Detect	>99.9%
Magnesium, ppm	18	<0.5	Non-Detect	>99.9%
TDS, ppm	2,200	2,500	<15	>99.9%
Boron, ppm	8.6	8.6	<0.03	>99.9%
Silica, ppm	220	<50	<0.03	>99.9%
Organics, ppm	210	210	<0.99	>99.9%