GLOBAL
WATER TREATMENT SERVICES LTD.

PRODUCT DATA SHEET

Advanced Reverse Osmosis System

High-Recovery Water Treatment for High-TDS Applications — Oil & Gas, Mining, and Industrial Wastewater

The Advanced RO System is a modular water treatment solution designed to maximize clean water recovery from high total dissolved solids (TDS) water sources. Leveraging advanced membrane technology and staged concentration processes, it produces **high-quality permeate while significantly reducing waste volumes** — at substantially lower capital and operating cost than conventional thermal concentration technologies such as Mechanical Vapor Recompression (MVR).

KEY BENEFITS & APPLICATIONS

High Water Recovery

- Designed for challenging high-TDS water streams
- Recovers significantly more clean water than conventional RO systems
- Produces a highly concentrated brine stream, minimizing waste disposal volumes

Lower Cost Than Thermal Technologies

- Significantly lower capital investment vs. MVR and other evaporative systems
- Reduced energy consumption and operating costs
- Simplified operation and maintenance requirements

Modular & Scalable Design

- Standardized modules in 100 GPM and 500 GPM configurations
- Easily scaled to any project size or flow requirement
- Flexible deployment for pilot, temporary, or permanent installations

Sustainable Water Management

- Maximizes water reuse opportunities; reduces freshwater demand
- Minimizes environmental footprint through reduced waste generation
- Directly supports ESG commitments and ZLD targets

APPLICATIONS

Produced Water Treatment
(Onshore & Offshore)

SAGD & Thermal EOR
Water Treatment

Mining & Mineral Processing
Wastewater

High-Salinity Groundwater
Treatment

Zero Liquid Discharge (ZLD)
Pretreatment

Industrial Wastewater
Reuse & Recovery

SYSTEM ADVANTAGES VS. CONVENTIONAL TECHNOLOGY

Feature	Advanced RO	MVR	SWRO
High-TDS Water Treatment	✓	✓	
High Water Recovery	✓	✓	
Concentrated Waste Stream	✓	✓	
Lower Energy Consumption	✓		✓
Modular Expansion	✓	✓	✓
Lower Capital Cost	✓		✓
Lower Operating Cost	✓		✓

Global Water Treatment Services Ltd.
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For more information or to request a site assessment:
Contact us at globalwater.ca

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TECHNICAL SPECIFICATIONS

MEMBRANE CHARACTERISTICS

Membrane Type	Thin-film composite (TFC) polyamide
Configuration	Spiral-wound pressure vessels
Operating Pressure	600–1,200 psi (high-pressure RO)
Design Flux	8–14 LMH (application-dependent)
Chemical Resistance	Acid, caustic, oxidant CIP compatible

SYSTEM PERFORMANCE

TDS Rejection	> 99% (monovalent & divalent ions)
Water Recovery	Up to 80–90% (staged configuration)
Permeate Quality	< 500 mg/L TDS (application-specific)
Turbidity (permeate)	< 0.1 NTU

OPERATING CONDITIONS

Temperature	5–45°C
Feed pH	3–10 (operating); 1–13 (CIP)
Feed SDI	< 5 (recommended < 3)
CIP Frequency	Weekly to monthly
Max Feed TDS	Application-specific (high-TDS capable)

PRETREATMENT REQUIREMENTS

Microfiltration / UF	Strongly recommended (SDI < 3)
Antiscalant Dosing	Required for scaling ion control
pH Adjustment	Required (acid dosing for carbonate)
Cartridge Filter	5 µm final guard filter

MODULE SIZES

Module	GPM	m^3/day
Standard RO Module	100 GPM	550 m^3/day
Large RO Module	500 GPM	2,700 m^3/day

Multiple modules can be combined to achieve any required treatment capacity while maintaining operational flexibility and future expansion capability.