

PRODUCT DATASHEET

Skid-Mounted & Containerized RO Systems

BWRO & SWRO | Single-pass or multi-pass | Modular capacity

DATASHEET NO.

DS-YS-RO-R03

ENGINEERING BASIS

SKID / BOX

TWO DELIVERY FORMATS

Open skid for a plant room or an integrated enclosure for outdoor and rapid-deployment duties.

BWRO / SWRO

FEED-WATER DUTY

Pressure, membranes, recovery and high-pressure materials follow the complete feed analysis.

1-3 PASS

PRODUCT-WATER QUALITY

Additional membrane passes are selected only when conductivity, TDS or boron targets require them.

N+1

TRAIN PHILOSOPHY

Parallel trains, duty/standby equipment and future expansion are defined from availability requirements.

SKID-MOUNTED RO



Open-frame equipment package for installation inside a plant room or purpose-built building. Optimized for access, maintenance and larger modular trains.

CONTAINERIZED RO



RO package integrated inside a transportable enclosure with coordinated utilities, lighting and environmental protection for rapid site deployment.

ONE RO PLATFORM - TWO PACKAGING OPTIONS

YORA supplies reverse-osmosis plants as skid-mounted packages or fully containerized systems. Both formats can include pretreatment, cartridge filtration, chemical dosing, high-pressure pumping, membrane separation, energy recovery, clean-in-place equipment, product conditioning, instrumentation and controls. The preferred format is selected from capacity, transport limits, building availability, environmental exposure, maintenance philosophy and site schedule.

Every system is engineered from the feed-water analysis and required product-water specification. Additional sizes and train arrangements are available on request.

PRODUCT DATASHEET

Delivery Format & Process Selection

The same RO technology configured for the site and operating philosophy

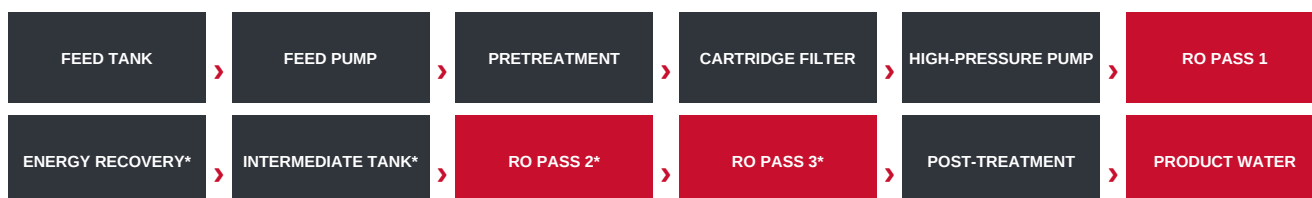
DELIVERY FORMAT

SKID-MOUNTED	CONTAINERIZED
Open-frame system for equipment rooms and treatment buildings › Unrestricted maintenance access around pumps, vessels and instruments › Flexible skid dimensions and equipment zoning › Well suited to large trains, phased plants and indoor installations › Site building, HVAC and utility distribution by agreed scope › Coated carbon steel, SS304 or SS316 skid structures	Transportable enclosed system for rapid deployment › Factory-integrated equipment, piping, electrical and controls › Weather protection, insulation, lighting and service access › HVAC, ventilation, flood detection and drainage options › 20-ft, 40-ft or engineered modular enclosure arrangement › Parallel containers for capacity, redundancy and future expansion

RO PROCESS OPTIONS

PROCESS	TYPICAL APPLICATION	DESIGN CHARACTERISTICS
BWRO single pass	Brackish groundwater, process water and reuse polishing	Moderate pressure; recovery optimized against hardness, silica and scaling
SWRO single pass	Seawater desalination for potable or service water	Marine-duty high-pressure circuit; energy-recovery device available
Two-pass RO	Lower conductivity, TDS or boron	First-pass permeate is conditioned and polished in a second membrane pass
Three-pass RO	Very low salinity or demanding process-water quality	SWRO or BWRO followed by two independent polishing passes
Parallel trains	Large demand, redundancy and phased expansion	Common or independent pretreatment, dosing, CIP and product collection

TYPICAL PROCESS FLOW



* Provided when required by feed source and product-water target. SWRO concentrate energy recovery is selected according to plant duty and economics.

PRODUCT DATASHEET

Capacity & Construction

Indicative sizing bands with materials matched to feed chemistry and pressure

INDICATIVE PRODUCT-WATER CAPACITY

SIZE BAND	NOMINAL OUTPUT	SKID-MOUNTED ARRANGEMENT	CONTAINERIZED ARRANGEMENT
Compact	10-100 m ³ /day	Single compact skid	Compact enclosure or 20-ft ISO-dimension module
Standard	>100-500 m ³ /day	Single integrated skid	20-ft or 40-ft ISO-dimension module
High-output	>500-2,500 m ³ /day	Modular skid train	40-ft or parallel ISO-dimension modules
Plant-scale	>2,500-10,000 m ³ /day	Multiple skids / parallel trains	Parallel process containers where practical
Engineered	>10,000 m ³ /day	Multi-train treatment plant	Containerized process modules combined with site systems

Capacity bands are indicative at 24-hour operation. Actual output per train depends on feed TDS, temperature, membrane flux, recovery, pass count, transport limits and required redundancy. Additional sizes are available on request.

TYPICAL MATERIALS OF CONSTRUCTION

COMPONENT / SERVICE	TYPICAL MATERIAL / CONFIGURATION	SELECTION BASIS
Low-pressure feed / product piping	uPVC, CPVC, HDPE or SS316L	Chemistry, pressure, temperature and client standard
High-pressure BWRO piping	SS316L; duplex option	Chloride level and design pressure
High-pressure SWRO piping	2205 duplex or super-duplex stainless steel	Marine corrosion resistance and pressure duty
Pressure vessels	FRP membrane housings	BWRO, SWRO or polishing pressure rating; design / manufacturing standard confirmed for the project
Membrane elements	Thin-film-composite polyamide	Feed type, rejection, flux and fouling potential
Skid frame / supports	Coated carbon steel, SS304 or SS316	Indoor / outdoor exposure and project specification
Container / enclosure	Marine-coated structural steel	Transport, ambient conditions and corrosion category
Chemical piping	uPVC, CPVC or PVDF	Chemical compatibility and concentration
Compressed-air piping	SS304 or project-selected equivalent	Instrument and valve-actuation duty

OPTIONAL CONTAINER ENVIRONMENTAL PACKAGE

INSULATION	AIR CONDITIONING	FLOOD DETECTION	AIR EXTRACTION
Optional thermal and acoustic lining selected for ambient and process conditions.	Optional HVAC sized for equipment heat load and design ambient.	Optional low-level leak sensors with alarm and shutdown logic.	Optional forced ventilation for heat rejection and chemical-area safety.

MEMBRANE & PRESSURE EQUIPMENT OPTIONS

ITEM	AVAILABLE CONFIGURATION
SWRO pressure vessels	FRP housings selected for approximately 1000 psi class duty
BWRO / polishing vessels	FRP housings selected for approximately 300 psi class duty
High-pressure pumping	VFD-controlled pumps with low-suction, high-pressure and temperature compensation logic
SWRO energy recovery	Pressure-exchange technology; high-efficiency selection according to plant duty

PRODUCT DATASHEET

Supply Scope, Automation & Selection

Configurable package boundary for skid-mounted or containerized plants

STANDARD PROCESS PACKAGE

CORE TREATMENT EQUIPMENT	AUTOMATION & PROTECTION
› Pretreatment and 5 micron cartridge filtration › High-pressure pumps, RO vessels and membranes › Chemical dosing and interstage conditioning › Clean-in-place tank, pump, filter and connections › Process piping, valves, instruments and supports	› PLC/HMI automatic and manual operating modes › Pressure, flow and conductivity monitoring › Tank-level sequencing and chemical permissives › Low suction, high pressure and quality alarms › Emergency stop and safe automatic shutdown

CLEAN-IN-PLACE PHILOSOPHY

INDICATOR	TYPICAL CLEANING TRIGGER
Normalized permeate flow	Decrease greater than 10%
Normalized feed-to-concentrate differential pressure	Increase of 15%
Normalized salt passage	Increase greater than 5%
Operating trend	Cleaning frequency established from feed quality and normalized performance

EXTRA OPTIONS

PROCESS OPTIONS	PACKAGE & SITE OPTIONS
› Second or third RO pass › UF / MF pretreatment and enhanced coagulation › Remineralization, pH correction and disinfection › Duty / standby pumps, filters and dosing systems › Concentrate, backwash and CIP-waste handling	› 20-ft, 40-ft ISO-dimension or engineered modular enclosure › Insulation, HVAC, flood detection and extraction › Remote SCADA and data logging › Product / chemical tanks and transfer pumps › Standby generator and utility interfaces

INFORMATION REQUIRED FOR SELECTION

INPUT	REQUIRED INFORMATION
Feed water	Full ionic analysis, TDS, SDI / turbidity, temperature and microbiology
Product duty	Required flow, operating hours, redundancy and future expansion
Product quality	TDS, conductivity, boron, intended use and governing standard
Site basis	Ambient conditions, indoor / outdoor location, utilities and plot limits
Logistics	Transport envelope, lifting limits, access and delivery sequence
Discharge	Concentrate, backwash and cleaning-waste disposal requirements

Published ranges provide the preliminary selection basis. Final selection is confirmed by design calculations, membrane projection, hydraulic review and an approved project datasheet. Capacity, recovery, pressure, materials, number of trains, enclosure certification status, accessories, applicable standards and package boundary are engineered for the specified water, actual site conditions and client technical requirements. Non-standard additions are identified as Extra Options.