M03-S Containerized Seawater Desalination System

The M03-S series helps island and coastal projects establish or supplement a local freshwater supply. It combines seawater pretreatment, SWRO and controls for community, facility and construction needs. Fixed output ratings from 100 to 1000 m³/day, in standard 20-foot or 40-foot containers, make it easier to match water demand with equipment and site requirements.

1. Island communities: a local freshwater source. Where freshwater is scarce or delivered from elsewhere, desalination offers a way to use local seawater. Pretreatment removes relevant particles and colloids; SWRO removes salts, followed by post-treatment for the intended use. Select a model using community and facility demand, daily production hours and storage capacity, as part of the local supply plan.
2. Resorts: production planned around peak demand. Water use in guest rooms, kitchens and laundries varies with occupancy and operating schedules. Size the system for peak daily demand and productive operating hours. Product-water storage provides reserves and balances production with periods of high consumption. Include the quality requirements of each use and the necessary storage capacity in the design.
3. Coastal camps: water during construction. Where mains water is not yet available or freshwater deliveries are limited, desalination can support camps and project bases. Containerized treatment simplifies transport, installation and maintenance planning. Select a model for each project phase and arrange seawater intake, power, storage, concentrate discharge and service access in advance.
4. Standard models matched to operating conditions. Compare daily demand and production hours with hourly output and container size. Seawater salinity, temperature and pretreatment needs form the design basis; see the specifications for energy recovery. Match the external power supply or generator to the equipment load. Remote monitoring and renewable-energy power are configuration options for coordinated operation and maintenance.

Technical Specifications

Series:	M03-S
Rated output:	See model table; daily output assumes 24 h/day at rated conditions.
Source water:	Seawater; confirm design salinity, temperature and pretreatment.
Product water:	Specified for drinking or other uses, with suitable post-treatment and testing.
Salt rejection:	≥99% design target; subject to the specified feedwater conditions.
RO recovery:	Design value based on feedwater conditions and membrane configuration.
Filtration and RO:	Pretreatment filtration, 5 μm cartridge filtration and SWRO membranes
Energy recovery:	Not fitted on the 100 m³/d model; fitted on 200–1000 m³/d models.
Feedwater basis:	Salinity, ionic composition, pH and temperature confirmed for the design.
Power supply:	External supply or generator; voltage, frequency and load by model.
Container size:	Standard 20GP / 40GP containers; external dimensions on the next page.
System integration:	Integrated modules; external intake, storage and utilities arranged separately.

Model Selection

Model	Daily output (m³/d)	Hourly output (m³/h)	Container
M03-S-100	100	4.17	20GP
M03-S-200	200	8.33	20GP
M03-S-300	300	12.50	20GP
M03-S-400	400	16.67	40GP
M03-S-500	500	20.83	40GP
M03-S-600	600	25.00	40GP
M03-S-700	700	29.17	40GP
M03-S-800	800	33.33	40GP
M03-S-900	900	37.50	40GP
M03-S-1000	1000	41.67	40GP

Output basis: Figures show RO permeate, excluding feedwater and any blended supply. Hourly values are rounded to two decimal places. Daily ratings assume 24 hours of production at rated conditions; actual daily output depends on productive operating hours and site conditions.

External dimensions (L × W × H): 20GP: 6058 × 2438 × 2591 mm; 40GP: 12192 × 2438 × 2591 mm. Allow additional site space for maintenance access, pipework and external equipment.

Configuration: 100–300 m³/d models use 20GP containers; 400–1000 m³/d models use 40GP containers. Internal layout and the scope of intake, storage, CIP and other supporting systems are confirmed for the selected model.

Selection: Define the end use and target water quality, then select treatment from the water analysis. Divide daily RO water demand by productive operating hours to find the required hourly output. For example, 175 m³/day over 20 hours requires 8.75 m³/h. The 200 m³/day model provides about 8.33 m³/h, so assess the 300 m³/day model or above against the design conditions and supporting equipment.

Water balance: RO feed flow = permeate flow ÷ recovery (as a fraction). RO concentrate flow = feed flow − permeate flow. Total raw-water demand must also include pretreatment backwash and other water losses.

Product Images (M03 Series Reference)

M03-S illustrative layout | Seawater desalination

Island resort water supply (application concept)

Island community water supply (concept)

Coastal construction camp (concept)

Equipment Photos and Treatment Comparison (M03 Series)

Container exterior

Membranes and service aisle

Pumps and controls

Before treatment

After treatment

Treatment process: Seawater intake and storage → feed pump → pretreatment filtration → 5 μm cartridge filtration → high-pressure pump → SWRO → post-treatment and product-water storage. Disinfection, dechlorination, antiscalant dosing and pH adjustment are configured for the feedwater. Output and salt rejection depend on the specified salinity, temperature and configuration. Drinking-water applications require appropriate post-treatment, disinfection and testing.