

SEAWATER CONTAINERIZED DESALINATION SERIES ARKQUA®

Ref: ARKQUA1500

GENERAL FEATURES:

This specification outlines the integrated design of the **ARKQUA® Series** of containerized systems, tailored for the **Industrial, Commercial, and Municipal** markets.

Each system is fully equipped for independent operation, provided that appropriate pretreatment measures are in place.

The standard design includes a containerized system featuring a duplex centrifugal pump, a media filtration unit, and a cartridge filter system, all housed within a compact containerized layout. Custom configurations are available upon request to meet specific customer requirements.

COMPONENTS:

- Container designed for oversea transportation
- Multimedia filtration system
- 5 micron FRP filter housing
- Feed Pump
- Duplex High Pressure Centrifugal RO Pump
- Energy Recovery Device Turbo Charger
- VFD for RO Pump & RO Feed Pump
- Digital flowmeters
- PLC and HMI
- Pressure transducers: High and low
- Isolation butterfly valves
- Remote control & monitoring
- Remote VPN connection
- Automatic Alarms & production reports via email
- Integral permeate flush and CIP system

CONTROL AND POWER:

- PLC with Ethernet card and spare cards
- 10-inch HMI
- Remote start/stop & alarm capabilities
- Zero recovery flush on shutdown
- Power: 400/460V, 3 phase, 50/60Hz



Fig1: ARKQUA® model ARKQUA1500

DESCRIPTION:

Single pass, single stage, five pressure vessels total. Each pressure vessel contains 15 membranes in series for a total of 90. System produces 1500 m3/day (400,000 GPD or 275 gpm) of product water at 45% recovery.

OPERATING PARAMETERS:

TDS	37,000-45,000 mg/l (as NaCl)
SDI 15	< 3.0
Temperature	25 to 35°C (77 to 95°F)
Recovery	40 to 45%
Nominal Rejection	>98%
Incoming Power	480/380Hz 60/50Hz
Power Consumption	10 - 14 Kw/hr/KGal

Note: Required 3bar (45psi) minimum customer supplied pressure to high pressure RO Feed Pump.
Temperatures and high salinities will reduce system productivity

Features and Benefits



Fig2: ARKQUA®1000 – Pretreatment Included (similar system)

MEMBRANE AND HOUSINGS:

- Multi Ported FRP pressure vessel design, 1000psi rated
- Spiral wound thin film composite membranes 98% nominal salt rejection.

MATERIALS OF CONSTRUCTION:

Power Distribution Panels	NEMA 12
Control Enclosure	NEMA 12
High pressure piping	Super Duplex SS
Low pressure piping	PVC Sch 80
High Pressure Tubing	Parflex
Low Pressure Tubing	Polyethylene
Pressure vessel rack	Marine-anodize-Aluminum
Multimedia Filters	FRP
PVC Sample Valves	On each vessel, feed, permeate and reject

OPTIONALS:

- ASME Code stamped pressure vessels
- Post-treatment degasifier
- 400 V, 3 Ph, 50 Hz fuse, A/C, Lighting kit
- pH meter and H₂SO₄ chemical feed
- NaOCl pretreatment chemical feed
- SBS chemical feed
- Installation and commissioning
- Supervision/services are available

INSTRUMENTS:

Conductivity	Permeate, Final product
Flow meters digital	Feed and permeate
Pressure switch	RO Feed and Discharge pump
Pressure gauges	Liquid filled for high and low pressures

ALARMS:

- Low pump suction pressure
- High pump pressure discharge
- Permeate water quality
- Low permeate flow
- High permeate flow
- Low reject flow
- Low/high voltage
- Phase protection
- Pump motor overload
- High membrane feed pressure
- Chemical tank protection level
- Flush storage tank level protection

PHYSICAL DATA & DIMENSIONS:

Dry Weight	2x 29500 lbs
Dimensions	480" x 96" x 96"
Piping Connections	
Feed	6"
Permeate	4"
Reject	6"
Power Consumption	10 - 14 Kwh/1000 Gallons