

# SEAWATER CONTAINERIZED DESALINATION SERIES ARKQUA®

## Ref: ARKQUA500



Fig1: ARKQUA® model ARKQUA500

### DESCRIPTION:

Single pass, single stage, four pressure vessels total. Each pressure vessel contains 7 thin-film composite elements in series for a total of 35. System produces 500 m<sup>3</sup>/day (132000 GPD or 91.2 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 Kwhr/KGal

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

### GENERAL FEATURES:

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

All necessary equipment required for independent operation is provided given the necessary pretreatment precautions taken.

Design basis includes containerized system with duplex centrifugal pump as well as a containerized media filter and cartridge filter system.

Custom configurations also available based on customer specific needs.

### COMPONENTS:

- Container designed for oversea transportation
- High Pressure Centrifugal RO Feed Pump w/ 400/460V 3 phase 50/60 Hz TEFC motor
- Energy Recovery Device Turbo Charger
- VFD for RO Pump & RO Feed Pump
- Digital flowmeters
- PLC
- Pressure switches: High and low
- Isolation butterfly valves
- Integral permeate flush and CIP system

### CONTROL AND POWER:

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

## Features and Benefits



Fig2: ARKQUA® model ARKQUA500 rendering

### MEMBRANE AND HOUSINGS:

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

### MATERIALS OF CONSTRUCTION:

<b>Power Distribution Panels</b>	NEMA 12
<b>Control Enclosure</b>	NEMA 12
<b>High pressure piping</b>	Super Duplex SS
<b>Low pressure piping</b>	PVC Sch 80
<b>High Pressure Tubing</b>	Parflex
<b>Low Pressure Tubing</b>	Polyethylene
<b>Pressure vessel rack</b>	Marine-anodize-Aluminum
<b>Multimedia Filters</b>	FRP
<b>PVC Sample Valves</b>	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:

<b>Conductivity</b>	Permeate, Final product
<b>Flow meters digital</b>	Feed and permeate
<b>Pressure switch</b>	RO Feed and Discharge pump
<b>Pressure gauges</b>	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:

<b>Dry Weight</b>	24500 lbs
<b>Dimensions</b>	480" x 96" x 96"
<b>Piping Connections</b>	
<b>Feed</b>	4"
<b>Permeate</b>	3"
<b>Reject</b>	3"
<b>Power Consumption</b>	10 - 14 Kwh/1000 Gallons