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**WATERITE, INC.**  
**PRODUCT SPECIFICATION SHEET**  
**RO-SYS-005 R05**  
**RB8 BLACKMAXX™ COMPACT 8040**  
**REVERSE OSMOSIS SYSTEMS**



## **A. GENERAL SPECIFICATIONS**

**TYPE:** Extra-low pressure RO system, 8" spiral wound membranes, recirculation loop, pre-filter, skid mounted

**VOLTAGE:** 208/230 VAC/60Hz, 3PH  
(208/230 VAC/50Hz, 3PH optional)  
(Other voltages are available - contact your Waterite representative with requirements)

**SERVICE AMPS:** **208/230 VAC 3PH**

<b>RB820K</b>	13.2/12
<b>RB830K</b>	19/17.2
<b>RB840K</b>	19/17.2
<b>RB860K</b>	25.6/23
<b>RB880K</b>	25.6/23
<b>RB8100K</b>	25.6/23
<b>RB8120K</b>	25.6/23

**Check local Electrical Codes for appropriate breaker/disconnect sizing.**

**FEED WATER PRESSURE:** 40 psi minimum, 65 psi maximum

**FEED WATER TEMP:** 40° C maximum

## **B. MATERIAL SPECIFICATIONS:**

**FRAME COLOUR:** Gloss White epoxy powder coat

**FRAME MATERIAL:** Mild steel 1.5" X 1.5" X 10 ga. rectangular tube, welded

### **FRAME FOOTPRINT DIMENSIONS:**

**Height** 67.5" (1.71m)

**Width** **20k/40k=64.75"** (1.64m)

**60-80k=105.0"**(2.67)

**100k/120k= 150"**(3.8m)

**Depth** **20k/40k=32.0"** (0.76m) **60-120k=32.0"**(0.81m)

**NOMINAL OPERATING PRESSURE:** 135 psi (9.4 bar) pre-membrane

**MEMBRANE:** **BLACK MAX**<sup>®</sup>, spiral wound TFC, BME8040SXL, 10,000 USGPD permeate (+/- 15%) @ 500 mg/l NaCl, 115 psi, 25°C feed 7.5 pH and 15% recovery

**UNIT DRY WEIGHT:**

<b>RB820K</b>	610 lbs. (276 kg)
<b>RB830K</b>	670 lbs. (304 kg)
<b>RB840K</b>	720 lbs. (326 kg)
<b>RB860K</b>	835 lbs (378 kg)
<b>RB880K</b>	950 lbs. (431 kg)
<b>RB8100K</b>	1085 lbs. (492 kg)
<b>RB8120K</b>	1220 lbs. (553 kg)

**INLET VALVE:** 220VAC/60Hz, SST Actuated ball valve, Manual override with visual valve position indicator, Two dry contact auxiliary limit switches used to confirm valve open/closed position 1.25" FNPT 20k/30k, 1.5" FNPT 40k/60k, 2.0" FNPT 80k/100k/120k

**FLUSH SOLENOID:** 220VAC/60Hz, normally closed, zero differential, brass 1.25" FNPT 20k/30k, 1.5" FNPT 40k-120k,

**FLUSH SOLENOID:** 220VAC/60Hz, normally closed, zero differential, brass 1.0" FNPT 20k/30k, 1.5" FNPT 40k-120k,

**PRESSURE SWITCHES:** SPDT snap action; single circuit 5 Amp @ 125/250 VAC (Class BB microswitch - standard) ± 2% of full range

**DRIVE PUMP MOTOR:** 208/230VAC/60Hz 3PH, TEFC, type 215TC frame, 3450 RPM, threaded shaft, ball bearing (Unless otherwise specified)

**DRIVE PUMP:** Multi-stage 306SS vertical booster pumps, flanged stainless discharge, housing and bracket, stainless impellers and stages, SS bearings, wear rings, couplings and pump shaft

	<b>HP</b>	<b>AMPS (208v)</b>	<b>Operational Flow Rate (35 psi feed)</b>	
<b>RB820K:</b>	5.0	13.1	35.8 USGPM @ 135 psi	<i>All pumps are soft start controlled</i>
<b>RB830K:</b>	7.5	19.0	60.0 USGPM @ 135 psi	
<b>RB840K:</b>	7.5	19.0	60.0 USGPM @ 135 psi	
<b>RB860K:</b>	10	25.6	70.0 USGPM @ 135 psi	
<b>RB880K:</b>	10	25.6	70.0 USGPM @ 135 psi	
<b>RB8100K:</b>	15	25.6	100.0 USGPM @ 135 psi	
<b>RB8120K:</b>	15	25.6	100.0 USGPM @ 135 psi	

**CONCENTRATE VALVE:** Butterfly 1.0" Wafer cast body, EPDM seals, sst disc, gear drive operator.

**RECIRCULATION VALVE:** Butterfly 1.0" Wafer cast body, EPDM seals, sst disc, gear drive operator.

**SYSTEM FITTINGS:** Schedule 80 PVC

**LOW PRESSURE FITTINGS:** Brass Presslok standard pressure compression

**LOW PRESSURE TUBING:** High pressure 1/4" MDPE, black



<b>PRE-FILTRATION HOUSING:</b>	JF Series 304 SS Jumbo Filter, 100 psi rated, o-ring seated with band clamp closure, 2" flanged inlet/outlet, full flow, 40 USGPM (20K) 90 USGPM (30K/40k) 130 USGPM (60k-120K))
<b>FILTER CARTRIDGES:</b>	<i>Excelpure</i> Jumbo Filter Cartridges 10" (HHF405) 20K/, 20" (HHF905) 30K/40K or 30" (HHF1705) 80K-120K pleated polypropylene, 5-micron
<b>MEMBRANE HOUSING:</b>	8040/8080/80120 FRP, anti-telescoping cages, 1½"/2" Victaulic quad-feed ports, 1" fnpt permeate port, 300 psi rating, product adapters, straps and saddles.
<b>PRESSURE GAUGES:</b>	Glycerin filled, stainless body, 2.5". (2X) 0-100 psi feed water pressure differential, (2X) 0-200 psi system pressure, trans-membrane
<b>FLOW METERS:</b>	(2) Create Model 8350 Digital Display Flow Transmitters, Paddle Wheel Style Sensors, and Installation Tees. 24VDC isolated output, 0-10, 0-20, 4-20 ma, DC current, RS485 for remote monitoring
<b>RO CONTROL PANEL:</b>	Moeller PLC- Pre Programmed High/Low Pressure Protection, Tank Full Indication. Operational indication of Inlet Pump, Inlet valve, Main Pump, Flush Valve, and Conductivity Over Limit Set Point. Single Conductivity Probe On Permeate 0-10/ 0-100/0- 1000 TDS. 0.75" MNPT. Automatic Temperature Compensation 220VAC 1ph (+/-15%)
<b>ELECTRICAL CABINET</b>	FRP, Nema 4 Enclosure, CSA, UL approved

**C. PERFORMANCE SPECIFICATIONS**

**PERMEATE PRODUCTION RATE:**

<b>RB820K</b>	11.0 USGPM (41.6 LPM)
<b>RB830K</b>	16.5USGPM (62.5 LPM)
<b>RB840K</b>	22.0 USGPM (83.2 LPM)
<b>RB860K</b>	33.0 USGPM (125 LPM)
<b>RB880K</b>	44.0 USGPM (166 LPM)
<b>RB8100K</b>	55.0 USGPM (208 LPM)
<b>RB8120K</b>	66.0 USGPM (250 LPM)

*Calculated production rate @ feed water of 500 mg/l NaCl, 25°C, average system pressure @ 135psi, 60 % recovery, inlet pressure of 40 psi.*



**WASTE PRODUCTION RATE:**

*Based on above parameters with variables indicated below.*

*Recovery Rate @ 60% for feed water with < 1000 TDS, feed water at 10° C (50°F)*

<b>RB820K</b>	7.3 USGPM (27.6 LPM)
<b>RB830K</b>	11 USGPM (41.6 LPM)
<b>RB840K</b>	14.6 USGPM (55.3 LPM)
<b>RB860K</b>	22 USGPM (83.2 LPM)
<b>RB880K</b>	29 USGPM (110 LPM)
<b>RB8100K</b>	36 USGPM (136 LPM)
<b>RB8120K</b>	43 USGPM (163 LPM)

*Recovery Rate @ 40% for feed water with > 1000 TDS, feed water at 10° C (50°F)*

<b>RB820K</b>	16.5 USGPM (62.5 LPM)
<b>RB830K</b>	24.7 USGPM (93.5 LPM)
<b>RB840K</b>	33.0 USGPM (125 LPM)
<b>RB860K</b>	40.0 USGPM (151 LPM)
<b>RB880K</b>	66.0 USGPM (250 LPM)
<b>RB8100K</b>	82.0 USGPM (310 LPM)
<b>RB8120K</b>	98.0 USGPM (370 LPM)

**D. RECOMMENDED FEED WATER PRETREATMENT SPECIFICATIONS:**

<b>TDS:</b>	< 2200 TDS
<b>HARDNESS:</b>	< 6 gpg (103 mg/l)
<b>TOTAL IRON:</b>	< .05 ppm
<b>TANNIN:</b>	< .5 ppm
<b>CHLORINE:</b>	< .1 ppm
<b>pH:</b>	5.5 – 9.5
<b>ORGANIC/MICROBIOLOGICAL ACTIVITY:</b>	0
<b>MANGANESE:</b>	<. 05 ppm
<b>HYDROGEN SULPHIDE:</b>	0
<b>TURBIDITY:</b>	SDI < 5.0 / NTU < 1.0

**E. FEED WATER REQUIREMENTS (GPM@ 40-60 psi, 1.5”):**

*Calculated with system operating at full capacity, test parameters*

<b>RB820K</b>	18.3 USGPM (69.2 LPM)
<b>RB830K</b>	27.4 USGPM (103.7 LPM)
<b>RB840K</b>	36.6 USGPM (138.5 LPM)
<b>RB860K</b>	55 USGPM (208 LPM)
<b>RB880K</b>	73.2 USGPM (277 LPM)
<b>RB8100K</b>	91.5 USGPM (346 LPM)
<b>RB8120K</b>	109.8 USGPM (415 LPM)



**F. OTHER STANDARD EQUIPMENT**

Audible TDS alarm	Permeate Flush Startup/Shutdown
Clean-in-Place Connections	4-20ma outputs for flow measurement
Water Temperature Indication	Automatic 12 hr Membrane Element Flush
Permeate Tank Full Indication	System Flush Indicator
Permeate & Feed Water Test Cocks	
Dual Channel Conductivity Controller (Raw and Permeate)	

**G. OPTIONAL EQUIPMENT**

Individual Permeate Sample Port/Housing  
Semi-Portable CIP System  
Pressure Transmitters  
*(Note: Other options available upon customer request)*

