

# COMMERCIAL / INDUSTRIAL REVERSE OSMOSIS SYSTEMS



When performance & value matters.



# COMMERCIAL / INDUSTRIAL REVERSE OSMOSIS COMPONENTS

## MICROPROCESSOR CONTROLLER

### SERIES 100



#### Features

- Three Digit LED Display and status LED indicators
- TDS/Conductivity monitor with set point adjustment
- Selectable switch inputs and flush modes
- Low pressure automatic reset
- Power requirement 120V/240V 50/60 Hz

#### Controls

- High pressure booster pump
- Inlet Valve
- Pressure Fault
- Tank level full with override
- Inlet valve with pretreat lockout
- Permeate Water quality

**Optional Features** Wire harness kit, Permeate divert, Remote Alarm and UL and cUL label

### SERIES 150



#### Features

- 2 Line 20 Character display with backlit
- Multi-function keypad
- Visual and audible alarm
- Programmable flush modes, time delays and set points.
- Low pressure automatic reset
- Hinged NEMA 4X enclosure
- TDS/Conductivity monitor and sensor
- Power requirement 120V/240V 50/60 Hz

#### Controls

- High pressure booster pump
- Inlet valve and flush valve
- Pressure fault
- Storage tank low and high level
- Permeate and feed with TDS/Conductivity
- Water temperature and pretreat lockout
- Operating hours
- Permeate divert and remote alarm

**Optional Features** Wire harness kit, Permeate divert and Remote alarm

### SERIES 200



#### Features

- 4 Line 20 character display with backlit
- Multi-function keypad
- Visual and audible alarm
- Programmable flush modes, time delays and set points
- Low pressure automatic reset
- Hinged NEMA 4X enclosure
- Permeate and feed TDS/Conductivity sensor and monitor
- Power requirement 120V/240V 50/60 Hz

#### Controls

- High pressure booster pump
- Inlet valve and flush valve
- Pressure fault
- Storage tank low and high level with override
- Permeate and feed with TDS/Conductivity
- Water temperature and pretreat lockout
- Operating hours
- Remote alarm and auxiliary pump motor

**Optional Features** Four flow meters, pH and ORP monitor and Communications

### SERIES 250



#### Features

- 4 Line x 40 character display with backlit
- 18 key keypad with integral alarm light
- Visual and audible alarm with timed alarm silence
- Additional Graphical Display
- Two pH, two flow and one Conductivity sensors

#### Controls

- Feed water valve relay
- Membrane flush valve
- Temperature
- Operating hours
- Low feed pressure switch
- Pretreatment lockout

**Optional Features** (1) pH sensor with display and set point.  
(2) Pressure sensors with ability to show pressure and differential pressure with low and high set points for alarm

# COMMERCIAL / INDUSTRIAL REVERSE OSMOSIS COMPONENTS

## COMMUNICATION CENTRE



- Series 200 and 250 controllers are compatible to be connected with communication package to read live performance data
- All pressure sensors, TDS sensors, flow sensors and errors are readable from remote computers
- The data stored in controller can be download and saved to a file for trending or later analysis

**Compatible systems:** - BACnet IP, BACnet MSTP, Ethernet IP Data, Modbus RTU and Modbus TCP

## HIGH PRESSURE MEMBRANE VESSEL

### 4" STAINLESS STEEL



- Seamless 304 Stainless Steel vessel
- ABS membrane end caps with 1/2" and 3/4" Female threaded connections
- Maximum operating pressure: - 300 psi
- Maximum Operating temperature: - 200°F

### 4" AND 8" FIBERGLASS

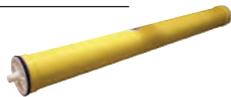


- Mirror inner finish for easy loading and unloading membranes
- Exterior coated with high gloss polyurethane paint for UV resistance
- Multi porting option to easily connect vessels to each other
- Quick lock head retention system for quick access to membranes
- Maximum operating pressure = 300 psi
- Maximum Operating Temperature = 120°F

**Certifications:** All components are NSF certified, ASME code compliant and CE certified

## REVERSE OSMOSIS MEMBRANE

### XLE-4040 (4")



### XLE-440 (8")



- Provides low energy cost and more productivity, especially in cold waters and at low applied pressure
- Spiral wound element with polyamide thin film composite membrane
- Provides 99% rejection of stabilized salt
- NSF approved Polyamide Thin Film Composite structure

#### Operating Parameters:

- Temperature < 113°F (45°C)
- Pressure < 600 psig (41 bar) ; Pressure drop < 15 psig (1.0 bar)
- pH range: - Continuous: 2-11 and short term: 1-13
- Feed Silt Density Index (SDI) < 5
- Free Chlorine Tolerance < 0.1 ppm

## BOOSTER PUMP

### HORIZONTAL CENTRIFUGAL



- Cast iron body fitted with heavy duty stainless steel hex shaft
- Precision machined for dimensional stability and efficiency
- Precisely checked for flow, pressure, power consumption, leaks, vibrations and noise
- Provides flow from 5 to 35 GPM with the maximum pressure of 500psi
- Carbon/Ceramic seal and Buna-N O-ring to prevent leakage
- "C" face motor ranges from 1/2 to 5 HP with 3450 RPM with 50 or 60 hz; 1 or 3 phase

### VERTICAL MULTISTAGE



- Cast iron vertical multistage body for narrow footprint
- 1 1/4" to 4" Flanged connections for easy installation and removal
- Provides flow up to 630 GPM with the maximum pressure of 750psi
- Motor power ranges from 1/3 to 60 HP
- Inbuilt dry running sensor to protect motor and pump

# COMMERCIAL / INDUSTRIAL REVERSE OSMOSIS COMPONENTS

## PRE-FILTER HOUSINGS

### BIG BLUE HOUSINGS



- Chemical resistance reinforced polypropylene material
- Double O-ring seal proof non-leak design
- Blue colored sump and black cap with pressure relief valve
- Maximum operating pressure: - 125 psig (8.62 bar)
- Maximum operating temperature: - 125° F (51.7° C)

### STAINLESS HOUSINGS



- Designed for industrial and commercial water filtration
- Heavy duty 304L or 316L stainless steel construction with poly coat on exterior provides maximum durability and corrosion resistance
- V-band clamp or swing bolt enclosure for secure sealing and quick cartridge change
- Adjustable top plate to accept variable length cartridges
- Maximum operating pressure = 150 psi

## PRE-FILTER CARTRIDGE



- Produced from a single strand in perfect geometric pattern with computerized art machinery
- Filtration ranges from 0.5 to 150 microns
- Independently tested to have the highest efficiency
- Polypropylene material with metal core can resist maximum temperature of 180°F
- Recommended change out at 25psi differential pressure and maximum differential pressure is 60psi

## PRESSURE GAUGE



- Stainless Steel panel flush mounted construction dial gauge
- Liquid filled under clear glass for proper sealing and vision
- 1/4" MNPT threads for pressure line connection
- Bar and psi units labelled and can resist up to the pressure of 300 psi

## FLOW METERS

### ROTAMETERS (550 – 1/4" TO 1")



- Durable, highly polished one piece body
- Optional adjustable needle type flow control
- Direct reading permanent scale
- 316 stainless steel, PTFE or hastelloy float and float guide
- Machine acrylic body provides maximum working pressure of 250 psi and temperature of 200° F
- NSF certified

### ELECTRONIC HALL EFFECT FLOW METERS



- Easy to read 8 digit LCD display up to 4 decimal position
- Flow rate and total flowrate display with security lockout
- Weather resistant ABS NEMA 4X enclosure
- Flow range from 6 to 600 GPM and pipe sizes from 1" to 3"
- Maximum working pressure is 200psig and maximum fluid temperature is 140°F
- FKM O-ring material for proper fluid sealing
- Sensor mounted on PVC tee with panel mounted display

# COMMERCIAL / INDUSTRIAL REVERSE OSMOSIS COMPONENTS

## LOW FEED PRESSURE SWITCHES



- Field adjustable set point ranges from 4 to 50 psi and maximum pressure of 1000 psi
- NPT threaded connections for easy installation
- One SPDT water sealed connections with electrical rating of 5A @ 125/250V AC and 3A @ 30V DC
- UL and cUL recognized aluminum enclosure
- Can resist shock up to 50 G with 10ms duration and vibrations up to 10 G @ 5-500 CPS

## FRAMES



### SFLC-SERIES

- Carbon steel blue painted frame
- Flush mounted 100 series controller
- Bent plate base for booster pump and repressurization pump
- Labelled flow meters and pressure gauges



### SFC-SERIES

- Carbon steel blue painted or Stainless steel frame
- Flush mounted 150 series controller
- Booster and repressurization pump mounts
- Labelled flow meters and pressure gauges



### SFLI-SERIES

- Carbon steel blue painted frame
- Can fit maximum quantity of 9 vessels ( $\varnothing 4''$ ) with 3 dashes (40" long) in one vessel
- All pipes are secured with clamps
- Can be lifted by forklift to move
- Series 200 or 250 controller can be flush mounted



### SFIN-SERIES

- Carbon steel blue painted frame
- Can fit maximum quantity of 12 vessels ( $\varnothing 8''$ ) with 4 dashes (40" long) in one vessel
- All pipes are secured with clamps
- Can be lifted by forklift to move
- Series 200 or 250 controller can be flush mounted

# COMMERCIAL / INDUSTRIAL REVERSE OSMOSIS COMPONENTS

## TANK FULL AND LOW SWITCHES



- Variable differential angle between on/off and adjustable with the distance from switch and clamp
  - Electrical ratings: 1/2 hp @ 115V AC and 1 hp @ 230V AC
  - Neoprene cable equipped with polystyrene float
  - The float can withstand to the maximum temperature of 140°F (60°C)
- Optional:** Optical high and low level switches

## STORAGE TANKS



- Vertical storage tanks made of high grade HDPE or XHDPE polyethylene are seamless, closed top and one-piece
- Can withstands with the liquids up to 2.2 specific gravity
- FDA compliant, listed as NSF 21 and fabricated to meet ASTM specifications
- Durable against Sun's ultraviolet radiations and low temperatures

## SOLENOID VALVE



- Brass body material and inner parts are made of brass, stainless steel and PPS
- Media is made of EPDM designed to run oil and fat free fluids
- The working temperature range is from -22°F to 131°F and maximum pressure is 120 psi

## DIAPHRAGM VALVE



- Diaphragm act as an actuator which eliminates need of electric and pneumatic power
- All internal parts are made of composite material and seals are ethylene propylene
- Normally closed valve is fully adjustable limit stop from full open to full closed with valve position indicator
- Female socket weld connectors (1"-3") for easy installation and removal
- All components can be serviced while the valve is in-line
- Molded pads can be used to support the piping manifold

# COMMERCIAL / INDUSTRIAL REVERSE OSMOSIS APPLICATIONS

## Commercial Applications

Assisted Living Facilities  
Hospitals  
Office Buildings  
Agriculture  
Aquatics  
Drinking Water

Car Wash  
Schools  
Restaurants  
Healthy Clubs  
Grocery Stores

## Industrial Applications

Bottling Plants  
Cooling Tower  
Chemical Processing  
Micro Electronics  
Pulp and Paper  
Power Generation

Fisheries  
Metals and mining  
Marine  
Boiler Pre Treatment  
Pharmaceutical  
Paint Booths

Process Water  
Steel Industries  
Aerospace  
Food Processing  
Hydrocarbon  
Processing

# SFLC SERIES COMMERCIAL REVERSE OSMOSIS SPECIFICATIONS



- Flow rates to 2.4 USGPM
- Salt rejection rate over 99 percent NSF
- 75 percent permeate recovery from feed water
- Performance data calculated by ROSA software
- Low pressure membranes reduces pump HP
- CSA / ESA / UL Certified
- 20" wide blue painted frame with bent base to mount booster pump and optional repressurization pump
- Panel flush mounted Series 100 controller
- Solenoid valve at inlet to pre-treatment lockout
- Permeate flow rate ranges from 1.4 to 2.8 GPM
- Rotameter flow meters with inbuilt needle valve flow control on recirculation and waste

## Excalibur SFLC-Series Commercial Reverse Osmosis Systems

MODEL <sup>1</sup>	PERMEATE		FEED		CONCENTRATE		Recir- culation Flow (GPM)	Membrane Quantity	VESSEL		ELECTRICAL REQUIREMENTS				WEIGHT (LBS)	SPACE REQUIRED (IN)		
	Flow (GPM)	Line Size (inch)	Flow (GPM)	Line Size (inch)	Flow (GPM)	Line Size (inch)			Qty	Array	Voltage	Phase	Max FLA (A)	Pump (HP)		L	W	H
RO SFLC1	1.2	0.5	1.6	0.75	0.4	0.5	7.0	1	1	1	230	3	2.8	0.75	150	22	18	64
RO SFLC2	2.4	0.5	3.2	0.75	0.8	0.5	4.0	2	2	1:1	230	3	2.8	0.75	175	22	18	64

Recirculation flow and waste flow rates given are nominal and can change by changing inlet water properties.

1 = "RP" is model number's suffix for including repressurization pump.

# SFC SERIES COMMERCIAL REVERSE OSMOSIS SPECIFICATIONS



- Flow rates to 9 USGPM
- Salt rejection rate over 99 percent NSF
- 75 percent permeate recovery from feed water
- Performance data calculated by ROSA software
- Low pressure membranes reduces pump HP
- CSA / ESA / UL Certified
- Stainless steel and carbon steel blue painted frames available
- 30" wide frame up to 3 membranes, 40" wide frame from 4 to 6 membranes and 52" wide frame for 8 membranes
- Series 150 PLC controller
- Solenoid valve at inlet for pre-treatment lockout
- Horizontal centrifugal booster and optional repressurization pump

## Excalibur SFC-Series Commercial Reverse Osmosis Systems

MODEL <sup>1</sup>	PERMEATE		FEED		CONCENTRATE		Recirculation Flow (GPM)	Membrane Quantity	VESSEL		ELECTRICAL REQUIREMENTS				WEIGHT (LBS)	SPACE REQUIRED (in)		
	Flow (GPM)	Line Size (inch)	Flow (GPM)	Line Size (inch)	Flow (GPM)	Line Size (inch)			Qty	Array	Voltage	Phase	Max Load Amperes	Pump (HP)		L	W	H
RO SFCS1	1.2	0.50	1.6	0.75	0.4	0.50	7.0	1	1	1	230	3	2.8	0.75	150	30	18	64
RO SFCS2	2.4	0.50	3.2	0.75	0.8	0.50	4.0	2	2	1:1	230	3	2.8	0.75	175	30	18	64
RO SFCS3	3.3	0.50	4.4	0.75	1.1	0.50	2.0	3	3	1:1:1	230	3	2.8	0.75	200	30	18	64
RO SFCS4	4.4	0.50	5.9	0.75	1.5	0.50	9.0	4	4	2:1:1	230	3	5.2	1.5	250	40	18	64
RO SFCS5	5.5	0.75	7.3	0.75	1.8	0.50	7.0	5	5	2:2:1	230	3	5.2	1.5	300	40	18	64
RO SFCS6	6.6	0.75	8.8	1.00	2.2	0.75	10.0	6	6	3:2:1	230	3	5.2	1.5	400	40	18	64
RO SFCS8	8.8	0.75	12.0	1.00	3.2	0.75	7.0	8	8	2:2:1:1:1:1	230	3	5.2	1.5	600	52	18	64

Recirculation flow and waste flow rates given are nominal and can change by changing inlet water properties.

1 = Include "S" in model number to order Stainless Steel Frame; "RP" is model number's suffix for including repressurization pump.

# SFLI SERIES INDUSTRIAL REVERSE OSMOSIS SPECIFICATIONS



- Flow rates to 23 USGPM
- Salt rejection rate over 99 percent NSF
- 75 percent permeate recovery from feed water
- Performance data calculated by ROSA software
- Low pressure membranes reduces pump HP
- CSA / ESA / UL Certified
- Series 200 or 250 controller for automated process
- Vertical multistage pump for boosting pressure
- Diaphragm valve for pre-treatment lockout
- Hall effect electronic flow meters with live reading LED displays
- TDS and PH sensor monitoring and display

## Excalibur SFLI-Series Reverse Osmosis Systems

MODEL	PERMEATE		FEED		CONCENTRATE		Recirculation Flow (GPM)	Membrane Quantity	VESSEL		ELECTRICAL REQUIREMENTS				WEIGHT (LBS)	SPACE REQUIRED (ft)		
	Flow (GPM)	Line Size (inch)	Flow (GPM)	Line Size (inch)	Flow (GPM)	Line Size (inch)			Qty	Array	Voltage	Phase	Max Load Am-peres	Pump (HP)		L	W	H
RO SFLI9	10	1.0	14	1.5	4	1.0	6.0	9	3	2:1	460	3	4.8	3	2,000	13	5	8
RO SFLI12	14	1.0	19	1.5	5	1.0	4.0	12	4	2:1:1	460	3	4.8	3	2,200	13	5	8
RO SFLI15	17	1.5	23	1.5	6	1.0	5.0	15	5	2:2:1	460	3	7.6	5	2,400	13	5	8
RO SFLI18	20	1.5	27	1.5	7	1.0	5.0	18	6	3:2:1	460	3	7.6	5	2,600	13	5	8
RO SFLI21	23	1.5	31	1.5	8	1.0	8.0	21	7	3:2:2	460	3	7.6	5	2,800	13	5	8

Recirculation flow and waste flow rates given are nominal and can change by changing inlet water properties.

# SFIN SERIES INDUSTRIAL REVERSE OSMOSIS SPECIFICATIONS



- Flow rates to 1000 USGPM
- Salt rejection rate over 99 percent NSF
- 75 percent permeate recovery from feed water
- Performance data calculated by ROSA software
- Low pressure membranes reduces pump HP
- CSA / ESA / UL Certified
- Series 200 or 250 controller for automated process
- Vertical multistage pump for boosting pressure
- Diaphragm valve for pre-treatment lockout
- Hall effect electronic flow meters with live reading LED displays
- TDS and PH sensor monitoring and display

## Excalibur SFIN-Series Reverse Osmosis Systems

MODEL	PERMEATE		FEED		CONCENTRATE		Recirculation Flow (GPM)	Membrane Quantity	VESSEL		ELECTRICAL REQUIREMENTS				WEIGHT (LBS)	SPACE REQUIRED (ft)		
	Flow (GPM)	Line Size (inch)	Flow (GPM)	Line Size (inch)	Flow (GPM)	Line Size (inch)			Qty	Array	Voltage	Phase	Max Load Amperes	Pump (HP)		L	W	H
RO SFIN12	60	2.0	80	2.0	20	1.5	2.0	12	4	2:1:1	575	3	11	10	3,000	13	5	8.5
RO SFIN18	90	3.0	120	3.0	30	1.5	2.0	18	6	3:2:1	575	3	17	15	3,500	13	5	8.5
RO SFIN28	125	3.0	167	3.0	42	1.5	2.5	28	7	4:2:1	575	3	34	15x2	4,500	17	6.5	8.5
RO SFIN32	160	3.0	224	4.0	64	2.0	10	32	8	4:3:1	575	3	34	15x2	4,700	17	6.5	8.5
RO SFIN48	215	4.0	287	4.0	72	2.0	40	48	12	6:4:2	575	3	34	15x2	6,500	17	6.5	8.5
RO SFIN72	325	5.0	433	5.0	108	3.0	60	72	18	10:5:3	575	3	51	15x3	7,500	17	10	8.5
RO SFIN96	430	5.0	574	6.0	144	3.0	20	96	24	12:8:4	575	3	81	25x3	9,000	17	12	8.5

Recirculation flow and waste flow rates given are nominal and can change by changing inlet water properties. Contact Excalibur for flow rates higher than 430 GPM.

## EXCALIBUR REVERSE OSMOSIS CLEAN IN PLACE (CIP)



- System designed to deliver longer membrane life
- Membranes flushed prior to being put back into service
- Clean In Place is designed for Specific Reverse Osmosis model
- Remove membrane deposits hence cures high pressure drops between feed and concentrate ports, low permeate flow, membrane fouling and low salt rejection
- Process does not need any disassembly
- Remote skid mounted system can be used for multiple units
- Filtered RO permeate is used for mixing chemical and recirculating in membranes
- Electric pump with flow control makes the system to adopt various size RO Systems
- Storage tank with labelled flange connections and drain port with ball valve



## **EXCALIBUR WATER SYSTEMS**

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