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VANTAGE® MICRO FLEX SERIES REVERSE OSMOSIS UNITS

Vantage® MicRO Flex (or MFX) Series units are pre-engineered and pre-assembled, reducing your installation and start-up costs while maximizing performance and efficiency.

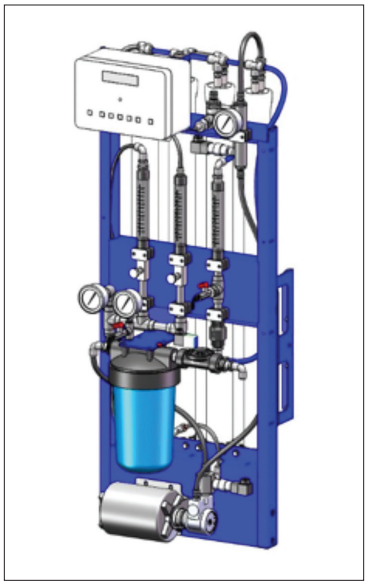
MFX units are fully factory tested and only require simple utility connections (feed water inlet, product water outlet, drains and power). MFX units arrive with reverse osmosis membranes installed and with minor set up, adjustments and flushing are ready for service. MFX units are simple to install, use and maintain.

MFX units are compact and versatile, with a small foot print allowing for maximum versatility in installation and use. Each unit can be installed either floor standing or easily wall mounted using the same leg brackets. An optional hinge can be ordered to enable easy access to the RO membranes by swinging the hinged unit away from the wall. MFX series offers innovative and cost effective options for customization to fit your unique high purity water needs.

The MFX System operating flow rates range from 0.8 gpm to 2.8 gpm based on the design parameters shown on the back page with the flexibility to choose either 2.5 inch or 4 inch, low energy, thin film composite RO membranes.

Each MFX unit includes:

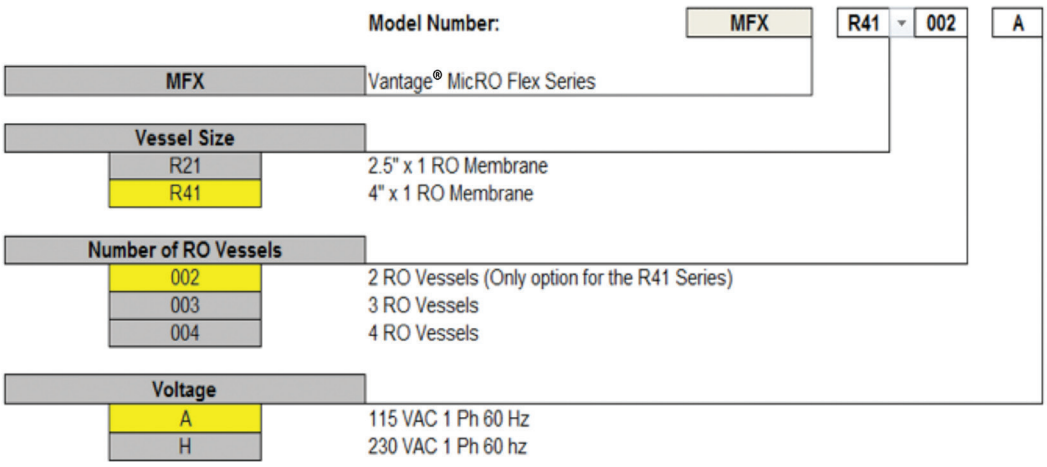
- User friendly RO controller for performance monitoring
- Positive displacement, rotary vane high pressure feed pump
- Low energy, polyamide, thin film composite reverse osmosis membranes
- Heavy duty, powder coated aluminum frame
- FRP end entry pressure vessels, available in 2.5" or 4" diameter



Wall Mounted Unit

SYSTEM PRODUCTION FLOW RATE SPECIFICATIONS (gpm)

Model Number	MFXR21 002	MFXR21 003	MFXR21 004	MFXR41 002
Feed	1.1	1.6	2.1	2.9
Product (maximum)	0.8	1.2	1.6	2.2
Reject	0.3	0.4	0.5	0.7
Reject Recycle	2.7	2.1	1.6	2.6



Additional Features:

- Ability to mount on the wall or floor for flexibility in installation. Saves valuable floor space, easy to install saves time, can be installed in a confined space such as a broom closet
- Optional wall mount hinge kit swings like a door, ease of access, improved serviceability for membrane removal, reducing downtime and saving labor costs
- Inlet solenoid valve that can be moved upstream or downstream of prefilter
- Low pressure PVC pipe
- FDA approved PE tubing (permeate)
- High pressure nylon tubing

DESIGN PARAMETERS

Configuration	Multi-Stage, Single Pass
Inlet Pressure	25 PSIG
Feed Water Temperature	25°C (77°F)
Feed Water Source	Well or Softened
Pre-filtration Requirements	5 µ nominal
Feed Water Fouling Index	Silt Density Index (SDI) < 3
System Recovery (Nominal)	75%
Product Pressure Available	15 PSIG
Performance Basis	A specific computer projection must be run for each individual application

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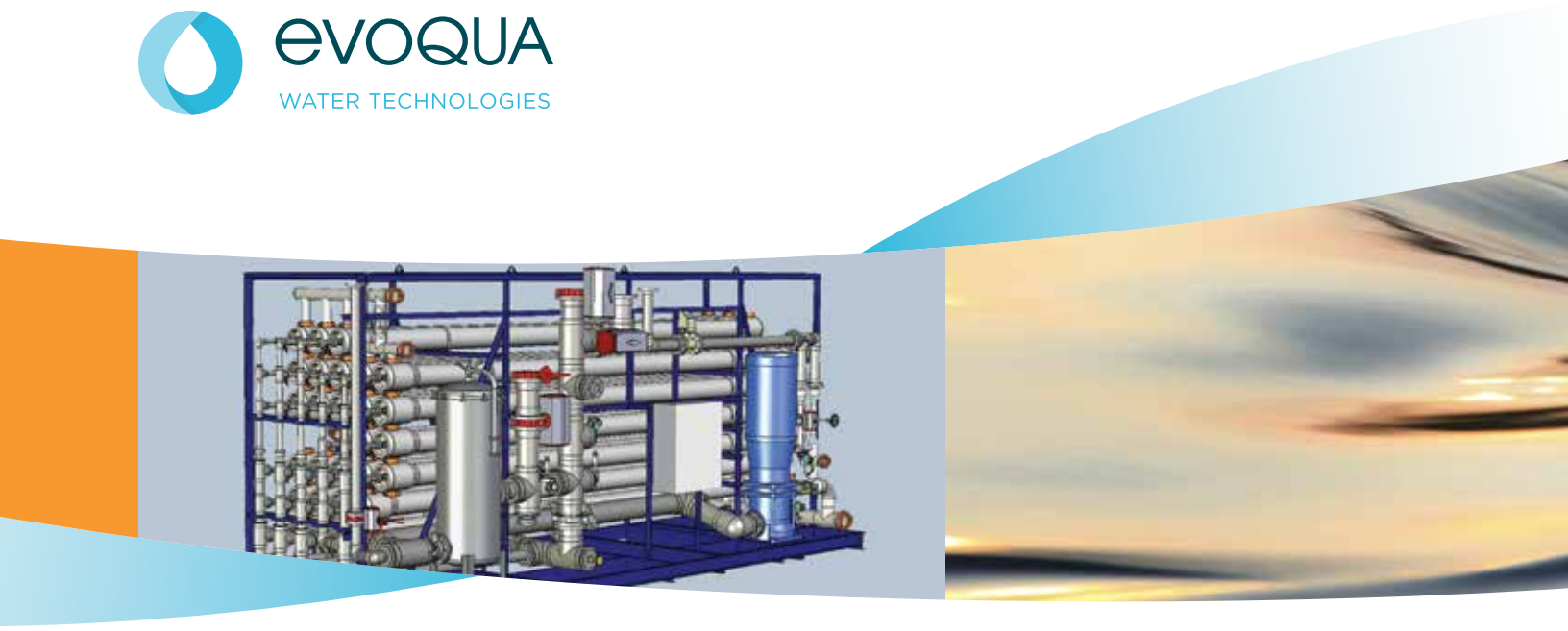

VANTAGE® M86 REVERSE OSMOSIS UNITS

THE CLEAR ADVANTAGE IN MEMBRANE SYSTEMS

Vantage® M86 units are packaged single-pass 8-inch reverse osmosis units designed for a variety of industrial applications requiring high quality equipment with a fast delivery and competitive price. These pre-engineered, pre-assembled and factory tested units minimize installation and start-up time. With simple utility connections and easy to set up controls, the unit is ready for quick on-line service.

The Vantage M86 unit comes in two models: the Plus (P) and the Deluxe (D).

- Plus (M86P) — Controlled by a PLC and user friendly touch screen Human Machine Interface (HMI)
- Deluxe (M86D) — M86P controls plus Variable Frequency Drive (VFD) for flow control, pressure indicating transducers at critical process locations, electromagnetic flow transmitters, and pH monitoring

The Deluxe unit also features membrane normalization calculations and data trending capabilities built into the controls and displayed on the HMI.

DESIGN PARAMETERS:

Feed Water Source	Well or Softened
Maximum Turbidity	1 NTU
Maximum Free Chlorine and/or chloramine	< 0.1 PPM
Feed Water Fouling Index	Silt Density Index (SDI) < 3
Inlet Temperature	60°F (15.6°C)
Inlet Pressure Requirements	30 PSIG minimum
Product Pressure Available	20 PSIG
System Recovery (Nominal)	75%
Performance Basis	A specific computer projection must be run for each individual application.

If any of the feed water parameters are not within the limits given, contact Evoqua Water Technologies Technical Support.

Vantage M86 unit benefits:

- Compact footprint saves valuable floor space
- Quick equipment delivery keeps project moving fast
- Clean in place connections maximize system serviceability
- Comprehensive factory testing performed at our ISO9001 certified facility

Standard M86 unit features:

- Choice of brackish water or low energy TFC membranes (400 ft^2) to ensure optimum water quality
- High pressure 316 stainless steel vertical multistage feed pump
- ASME Code FRP, RO pressure vessels with ASME pressure relief protection
- PVC low pressure feed, product and reject piping, 316L stainless steel high pressure piping
- Urethane coated carbon steel frame
- Dry contacts are provided for chemical feed, pretreatment equipment, storage tank levels, and pressure switches
- All alarm and shut down conditions are indicated on the control interface

SPECIFICATIONS

MODEL NO**	FLOW RATE SPECIFICATIONS GPM NOMINAL (M^3/HR)			VESSEL STAGING	MEMBRANE/ VESSEL	MEMBRANE QUANTITY	CUSTOMER CONNECTION SPECIFICATIONS			UTILITY REQUIREMENTS***			APPROX. SHIPPING WEIGHT LB (KG)
	PRODUCT*	FEED	REJECT				FEED	PRODUCT	REJECT	HIGH VOLTAGE SERVICE	HIGH VOLTAGE FLA	PUMP HP	
M86R072	320 (72.7)	427 (97.0)	107 (24.3)	8:4	6	72	6"	6"	3"	460 VAC	132	50 x 2	11,500 (5216)
M86R090	400 (90.8)	533 (121.1)	133 (30.2)	10:5	6	90	6"	6"	3"	460 VAC	150	60 x 2	12,100 (5488)
M86R126	560 (127.2)	747 (170.0)	187 (42.5)	14:7	6	126	8"	6"	4"	460 VAC	10	200	14,800 (6713)
M86R162	720 (163.5)	960 (218.0)	240 (54.5)	18:9	6	162	8"	8"	4"	460 VAC	10	250	16,000 (7257)

*Product flow rates are based on a flux rate of 16 GFD and equipment design parameters listed below. Product flow rates may not be appropriate for other feed waters.
**The 8 designates 8" housing, the 6 designates 6 elements in length, and the -RXXX designates the number of membranes.
***Additional voltage options are available. Refer to equipment specifications.

DIMENSIONS

	072 MEMBRANE 090 MEMBRANE	126 MEMBRANE 162 MEMBRANE
SKID Length	279" (7087 mm)	287" (7747 mm)
SKID Width	66" (1676 mm)	94" (2438 mm)
SKID Height	110" (2845 mm)	128" (3251 mm)

MODEL FEATURES

DESCRIPTION	M86P (PLUS)	M86D (DELUXE)
Controls	PLC	PLC
HMI	10" Color Touch Screen	10" Color Touch Screen
Inputs/Outputs	Discrete 24 point (14 input/10 output) Analog 2 input and 1 output	Discrete 24 point (14 input/10 output) Analog 2 input and 1 output Analog 4 channel input (2) Analog 2 channel output (1)
I/O Expansion Capability	Yes	Yes
Communication Port	Ethernet	Ethernet
Flow Monitoring	Paddlewheel to PLC (feed/reject)	Electromagnetic Transmitter
Pressure	Gauges	Indicating Transducer
Conductivity	Signet Multiparameter	Signet Multiparameter
Auto-Flush (Standby)	Yes	Yes
Permeate Flush	Yes (dry contact)	Yes (dry contact)
Visual/Audible Alarm	Yes	Yes
Single Power Drop 072 and 090 Membrane units 126 and 162 Membrane units*	 460/575 VAC 120 VAC	 460/575 VAC 120 VAC
304LSS Pre-Filter Housing	Yes	Yes
Product Divert Kit	Yes	Yes
Variable Frequency Drive (VFD) Pump 072 and 090 Membrane units 126 and 162 Membrane units	 No No	 Yes (on skid) Yes (by others)
pH with alarms	No	Yes
Product Blend Kit	Yes	Yes
ORP monitor with alarms	Optional	Optional

*High voltage components are not provided on these models and will require a separate power drop (460/575) VAC by others.

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Vantage® M84
Reverse Osmosis Units

THE CLEAR ADVANTAGE IN MEMBRANE SYSTEMS

Vantage® M84 units are packaged single-pass 8-inch reverse osmosis units designed for a variety of industrial applications requiring high quality equipment with a fast delivery and competitive price. These pre-engineered, preassembled and factory tested units minimize installation and start-up time. With simple utility connections and easy to set up controls, the unit is ready for quick on-line service.

The Vantage M84 unit comes in three models: Plus (P), Deluxe (D), and Select (S).

- Plus (M84P) – Controlled by PLC and user friendly touch screen Human Machine Interface (HMI)
- Deluxe (M84D) – M84P controls plus Variable Frequency Drive (VFD) for flow control and Clean In Place (CIP) function, and pH/ORP monitoring
- Select (M84S) - A stainless steel "Deluxe" package including stainless steel frame, piping and control panel

The Deluxe model is equipped with an integrated "On-Board" cleaning system (CIP) initiated through the HMI. This CIP system includes plumbing to the on-skid RO cartridge filter housing and a VFD-controlled pump, along with factory-supplied valves, hoses, and a polyethylene CIP tank (off-skid). Additionally, pressure transmitters are linked to the control system, allowing for data collection and normalization to optimize RO performance. Normalized RO data including permeate flow, differential pressure, and conductivity are calculated and displayed as trending data is displayed on the HMI.

The Select model showcases the features of the Deluxe package upgraded with robust stainless steel components that can be custom designed to meet customer needs. The Select Model includes a stainless steel frame and control panel, combined with 316L stainless steel feed, product and high-pressure concentrate for unparalleled durability and performance.

Above: Deluxe Package. At top of page: Select Package.

VANTAGE M84 UNIT BENEFITS

- Compact footprint saves valuable floor space
- Quick equipment delivery keeps project moving fast
- Clean in place connections maximize system serviceability
- Comprehensive factory testing performed at our ISO9001 certified facility

STANDARD M84 UNIT FEATURES

- Choice of brackish water or low pressure TFC membranes (400 ft^2) to ensure optimum water quality
- High pressure 316 stainless steel vertical multistage feed pump
- ASME Code FRP, RO pressure vessels with pressure relief protection
- PVC low pressure feed, product and reject piping, 316L stainless steel high pressure piping
- Industrial coated carbon steel frame (304 stainless steel for Select)
- Dry contacts are provided for chemical feed, pretreatment equipment, storage tank levels, and pressure switches
- All alarm and shut down conditions are indicated on the control interface
- Tank level may be controlled via a 4-20 MA signal input for storage tank level on deluxe/select models.

SPECIFICATIONS

Model No**	Flow Rate Specifications GPM Nominal (m³/hr)			Vessel Staging	Membrane Vessel	Membrane Quantity	Customer Connection Specifications			Utility Requirements***			Approx Shipping Weight lb (kg)
	Product*	Feed	Reject				Feed	Product	Reject	High Voltage Service	High Voltage FLA	Pump HP	
M84R024	107 (24.3)	143 (32.5)	36 (8.7)	3:2:1	4	24	3"	3"	2"	480 VAC 3ph	42	30	5576 (2529)
M84R036	160 (36.3)	215 (48.8)	53 (12.0)	4:3:2	4	36	4"	4"	2"	480 VAC 3ph	67	50	6115 (2774)
M84R048	214 (48.6)	285 (64.7)	71 (16.1)	6:4:2	4	48	4"	4"	2"	480 VAC 3ph	79	60	6465 (2932)

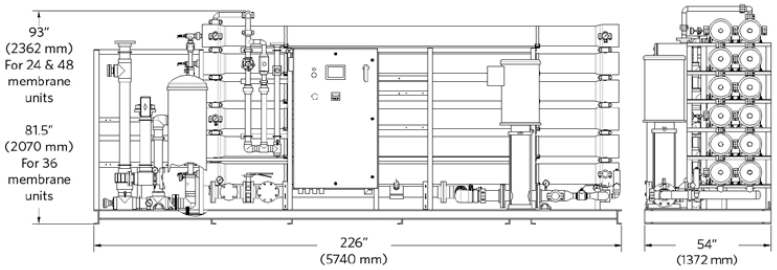
* Product flow rates are based on a flux rate of 16 GFD and equipment design parameters listed below. Product flow rates may not be appropriate for other feed waters.
** The 8 designates 8" housing, the 4 designates 4 elements in length, and the -R0XX designates the number of membranes.
*** Additional voltage options are available. Refer to equipment specifications.

MODEL FEATURES

Description	M84P (Plus)	M84D (Deluxe/Select)
Controls	PLC	PLC
HMI	7" Color Touch Screen	7" Color Touch Screen
Inputs/Outputs	Discrete 32 point (20 input/12 output)	Discrete 32 point (20 input/12 output)
I/O Expansion Capability	Yes	Yes
Communication Port	Ethernet	Ethernet
Remote Monitoring /Communications*	Ethernet	Ethernet
Flow Monitoring	Paddlewheel to PLC (feed/reject)	Paddlewheel to PLC (feed/reject)
Conductivity	Mettler M800 Multiparameter	Signet Multiparameter
Auto-Flush (Standby)	Yes	Yes
Visual/Audible Alarm	Yes	Yes
Single Power Drop (460/575 VAC)	Yes	Yes
304LSS Pre-Filter Housing	Yes	Yes
Product Divert Kit	Yes	Yes
Variable Frequency Drive (VFD) Pump	No	Yes
On-Board CIP (Tank off-skid)	No	Deluxe only
ORP/pH with alarms	Optional	Yes
Pressure Transmitters	No	Yes
Low Pressure Membranes (Cold Water)	Optional	Optional
Product Blend Kit	Optional	Optional

*Additional communication modules and remote monitoring capabilities available upon request.

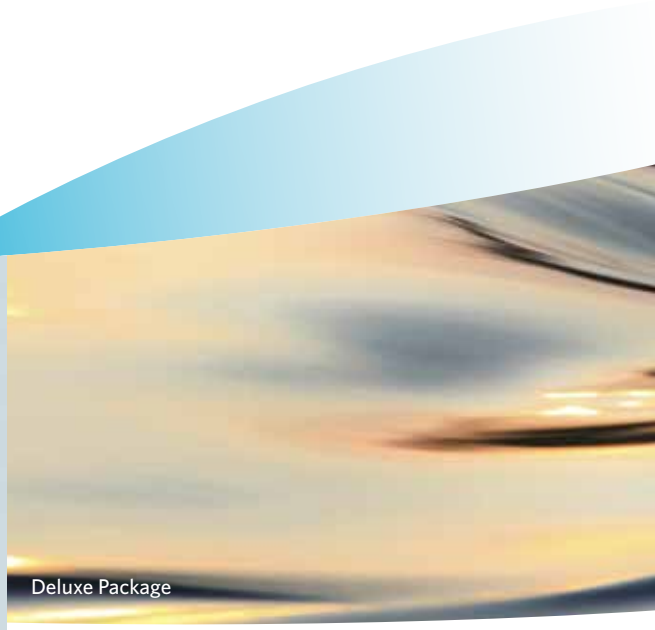
DIMENSIONS



DESIGN PARAMETERS

Feed Water Source	Well or softened
Maximum Turbidity	1 NTU
Maximum Free Chlorine and/or Chloramine	<0.1 PPM
Feed Water Fouling Index	Silt Density Index (SDI) <3
Design Feed Water Temperature*	65° F (18.3° C)
Inlet Pressure Requirements	30 - 60 PSIG (2.07- 4.14 Bar)
Product Pressure Available	10 PSIG (0.7 Bar)
System Recovery (Nominal)	75%
Performance Basis	A specific computer projection must be run for each individual application.

* Lower temperature may require larger booster pump or use of low energy membranes. If any of the feed water parameters are not within the limits given, contact Evoqua Water Technologies Technical Support.



Deluxe Package

VANTAGE® M83 REVERSE OSMOSIS UNITS

THE CLEAR ADVANTAGE IN MEMBRANE SYSTEMS

Vantage® M83 units are packaged single-pass 8-inch reverse osmosis units designed for a variety of industrial applications requiring high quality equipment with a fast delivery and competitive price. These pre-engineered, pre-assembled and factory tested units minimize installation and start-up time. With simple utility connections and easy to set up controls, the unit is ready for quick on-line service.

The Vantage M83 unit comes in four models: Economy (E), Plus (P), Deluxe (D) and Select (S).

- Economy (M83E) – Controlled by Microprocessor
- Plus (M83P) – Controlled by PLC and user friendly touch screen Human Machine Interface (HMI)
- Deluxe (M83D) – M83P controls plus Variable Frequency Drive (VFD) for flow control and Clean In Place (CIP) function, pressure transmitters for RO normalization, and pH/ORP monitoring
- Select (M83S) - A stainless steel "Deluxe" package including stainless steel frame, piping and control panel

The Deluxe model features an "On-Board" integrated cleaning system (CIP) initiated through the HMI. The CIP system includes plumbing to the on-skid RO cartridge filter housing and VFD controlled pump along with the factory supplied valves, hoses, and a polyethylene CIP tank (off-skid).

The Deluxe model is equipped with pressure transmitters that are linked to the control system such that the data can be collected and normalized for optimization of RO performance. Normalized RO data including permeate flow, differential pressure, and conductivity are calculated and trending data is displayed on the HMI.

Vantage M83 Unit Benefits

- Compact footprint saves valuable floor space
- Quick equipment delivery keeps project moving fast
- Clean in place connections maximize system serviceability
- Comprehensive factory testing performed at our ISO9001 certified facility

Standard M83 Unit Features

- Choice of brackish water or low energy TFC membranes (400 ft^2) to ensure optimum water quality
- High pressure 316 stainless steel vertical multistage feed pump
- ASME Code FRP, RO pressure vessels with pressure relief protection
- PVC low pressure feed, product and reject piping, 316L stainless steel high pressure piping
- Industrial coated carbon steel frame (304 stainless steel for Select)
- Dry contacts are provided for chemical feed, pretreatment equipment, storage tank levels, and pressure switches
- All alarm and shut down conditions are indicated on the control interface
- Tank level may be controlled via a 4-20 mA signal input for storage tank level on Deluxe/Select models.

SPECIFICATIONS

Model No**	Flow Rate Specifications GPM Nominal (m^3/hr)				Vessel Staging	Membrane Vessel	Membrane Quantity	Customer Connection Specifications			Utility Requirements***			Approx Shipping Weight lb (kg)
	Product*	Feed	Reject	Recycle				Feed	Product	Reject	High Voltage Service	High Voltage FLA	Pump HP	
M83R006	30 (6.8)	40 (9.1)	10 (2.3)	10 (2.3)	1:1	3	6	2″	1.5″	1.5″	480 VAC 3ph	22.5	15	2850 (1293)
M83R009	45 (10.2)	60 (13.6)	15 (3.4)	5 (1.1)	1:1:1	3	9	2″	1.5″	1.5″	480 VAC 3ph	29	20	3050 (1383)
M83R012	60 (13.6)	80 (18.2)	20 (4.5)	5 (1.1)	2:1:1	3	12	3″	2″	1.5″	480 VAC 3ph	29	20	3250 (1474)
M83R015	75 (17.0)	100 (22.7)	25 (5.7)	3 (0.7)	2:2:1	3	15	3″	2″	1.5″	480 VAC 3ph	42	30	3500 (1588)
M83R018	90 (20.4)	120 (27.3)	30 (6.8)	3 (0.7)	3:2:1	3	18	3″	3″	1.5″	480 VAC 3ph	42	30	4100 (1860)

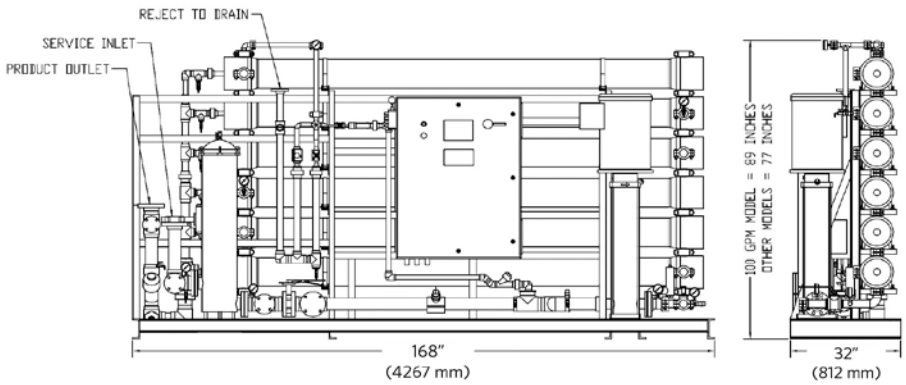
* Product flow rates are based on equipment design parameters listed below. Product flow rates may not be appropriate for other feed waters.
** The 8 designates 8″ housing, the 3 designates 3 elements in length, and the R0XX designates the number of membranes.
*** Additional voltage options are available. Refer to equipment specifications.

MODEL FEATURES

Description	M83E (Economy)	M83P (Plus)	M83D (Deluxe/Select)
Controls	Microprocessor	PLC & HMI	PLC & HMI
Inputs/Outputs	Discrete 14 point (8 input/6 output)	Discrete 32 point (20 input/12 output)	Discrete 32 point (20 input/12 output)
I/O Expansion Capability	No	Yes	Yes
Communication Port	Ethernet Optional	Ethernet	Ethernet
Remote Monitoring/Communications*	Ethernet Optional	Ethernet	Ethernet
Flow Monitoring	Rotometers (product/reject/ recycle)	Paddlewheel (feed/reject) Rotometer (recycle)	Paddlewheel (feed/reject) Rotometer (recycle)
Conductivity	Integral to Controller	Signet Multiparameter	Signet Multiparameter
Auto-Flush (Standby)	Yes	Yes	Yes
Visual/Audible Alarm	Yes	Yes	Yes
Single Power Drop (480 VAC)	Yes	Yes	Yes
304LSS Pre-Filter Housing	Yes	Yes	Yes
Variable Frequency Drive (VFD) Pump	No	No	Yes
On-Board CIP (Tank off-skid)	No	No	Yes
ORP/pH with alarms	Optional	Optional	Yes
Pressure Transmitters	No	No	Yes
Low Pressure Membranes (Cold Water)	Optional	Optional	Optional
Product Divert Kit	No	Yes	Optional

*Additional communication modules and remote monitoring capabilities available upon request.

DIMENSIONS



DESIGN PARAMETERS

Feed Water Source	Well or softened
Maximum Turbidity	1 NTU
Maximum Free Chlorine and/or Chloramine	<0.1 PPM
Feed Water Fouling Index	Silt Density Index (SDI) <3
Design Feed Water Temperature*	65° F (18.3° C)
Inlet Pressure Requirements	30 - 60 PSIG
Product Pressure Available	10 PSIG
System Recovery (Nominal)	75%
Performance Basis	A specific computer projection must be run for each individual application.

* Lower temperature may require larger booster pump or use of low energy membranes.

If any of the feed water parameters are not within the limits given, contact Evoqua Water Technologies Technical Support.

evoqua
WATER TECHNOLOGIES

VANTAGE™ M43 REVERSE OSMOSIS UNITS

THE CLEAR ADVANTAGE IN MEMBRANE SYSTEMS

Vantage™ Reverse Osmosis (RO) units are pre-engineered, pre-assembled units specifically designed for a variety of industrial and commercial applications. Vantage RO units offer you the greatest flexibility possible from a standard unit. Product lines within the Vantage single-pass RO family of units include the MicRO, M21, M41, M43, M83 and M84; each designed for a specific range of flow rates.

The Vantage M43 series RO units contain 4-inch membranes with flow rates of 10.5 to 23 gallons per minute (2.4 to 5.4 m^3/hr). Many features of the Vantage M43 units allow for fast delivery and quick startup. The control system is an advanced microprocessor-based system that is very easy to use. High quality components ensure continuous and reliable operation.

Each M43 series unit is a single pass RO unit mounted on a polyurethane coated structural steel frame. The RO unit includes a high pressure feed pump, end entry pressure vessels, spiral wound thin film composite (TFC) membranes, PVC low pressure feed piping, stainless steel and brass high pressure piping, PVC reject and recycle piping, PVC product piping, and a microprocessor controller.

Vantage M43 Unit Benefits

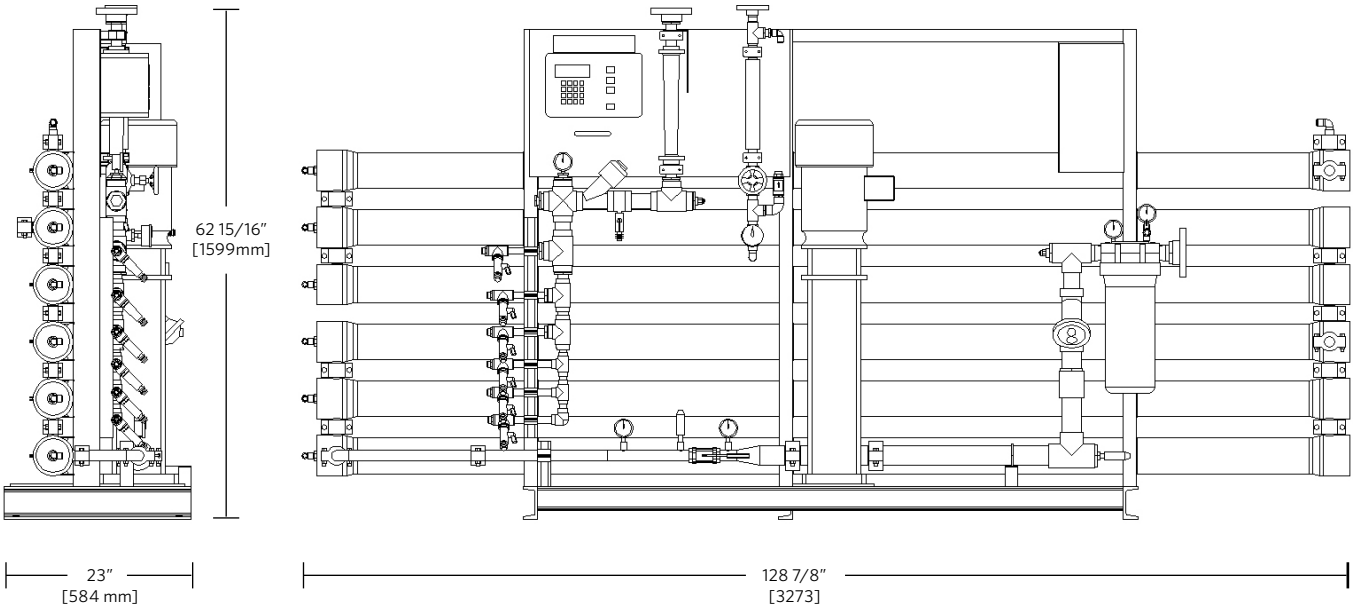
- TFC low energy membranes ensure optimum water quality
- Microprocessor-based controller provides user-friendly programmable controls
- Dial-up capability enables real-time remote monitoring
- Clean-in-place connections maximize system availability and serviceability
- Auxiliary equipment interface provides system-wide control
- Compact footprint saves valuable floor space

SPECIFICATIONS

Model No*	Flow Rate Specifications GPM Nominal (m^3/hr)			Vessel Staging	Membrane Quantity	Customer Connection Specifications			Utility Requirements***			Approximate Shipping Weight
	Product**	Feed	Reject			Feed	Product	Reject	High Voltage Service	High Voltage FLA	Pump HP	lb (kg)
M43R009	10.5 (2.4)	16.2 (3.7)	5.7 (1.3)	1:1:1	9	2″	1 1/2″	3/4″ NPT	480 VAC	12	10	1110 (505)
M43R012	15 (3.4)	21.4 (4.9)	6.4 (1.5)	2:1:1	12	2″	1 1/2″	3/4″ NPT	480 VAC	12	10	1250 (568)
M43R015	19 (4.3)	25.3 (5.7)	6.3 (1.4)	2:2:1	15	2″	1 1/2″	3/4″ NPT	480 VAC	12	10	1400 (636)
M43R018	23 (5.2)	30.7 (6.9)	7.7 (1.7)	3:2:1	18	2″	1 1/2″	3/4″ NPT	480 VAC	12	10	1550 (705)

*The 4 designates 4″ housing, the 3 designates three 40″ elements in length and the R00X designates the number of membranes.
**Product flow rates are based on equipment design parameters listed below. Product flow rates may not be appropriate for other feed waters.
***Additional voltage options are available. Refer to equipment specifications.

DIMENSIONS



DESIGN PARAMETERS

Configuration	Multi-Stage, Single Pass
Feed Water Source	Well or Softened
Prefiltration Requirements	5 µ nominal
Feed Water Fouling Index	Silt Density Index (SDI) < 3
Design Feed Water Temperature	77˚F (25˚C)
Inlet Pressure Requirement	25 - 100 PSIG (172 - 689 KPA)
Product Pressure Available	25 PSIG (172 KPA)
System Recovery (Nominal)	75%
Performance Basis	A specific computer projection must be run for each individual application.

If any of the feed water parameters are not within the limits given, contact Evoqua Water Technologies Technical Support.

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WATER TECHNOLOGIES

VANTAGE® M41 GENERAL PURPOSE (GP) SERIES REVERSE OSMOSIS UNITS

THE CLEAR ADVANTAGE IN MEMBRANE SYSTEMS

Vantage® Reverse Osmosis (RO) units are pre-engineered and pre-assembled units designed for a variety of industrial and commercial applications. Vantage RO units offer you the greatest flexibility possible from a standard unit. Product lines within the Vantage single-pass RO family include the MicRO-Flex, M21, M41RS, M43, M83, M84 and M86; each designed for a specific range of flow rates.

Each M41 GP series RO unit consists of a vertical centrifugal high pressure feed pump, fiberglass reinforcement plastic (FRP) pressure vessels, spiral wound thin-film composite (TFC) membranes, PVC/PEX low pressure feed, reject, recycle and product piping, stainless steel high pressure piping/rubber hose and a microprocessor controller.

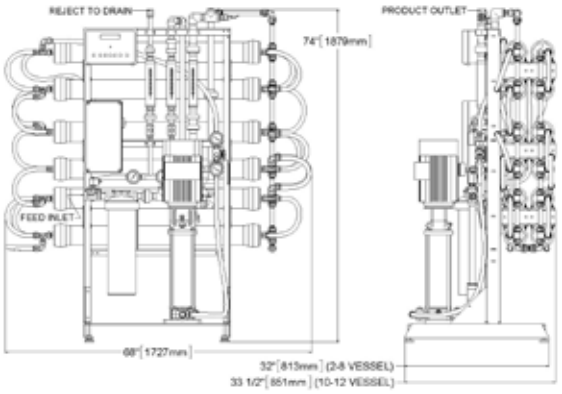
Vantage M41 GP Unit Benefits

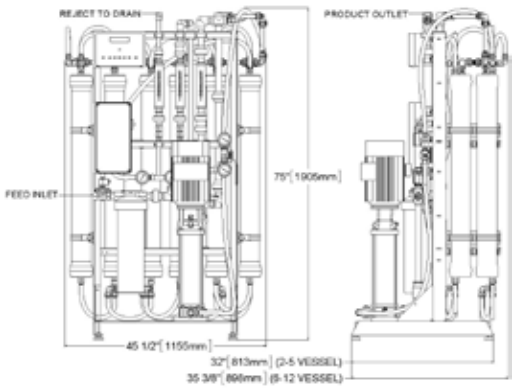
- Low energy TFC membranes ensure optimum water quality
- Microprocessor-based controller provides user-friendly programmable controls
- Auxiliary equipment interface provides system-wide control
- Reject recycle maximizes water recovery and minimizes waste
- Compact footprint saves valuable floor space
- Configurable in horizontal or vertical RO housing orientation to either maximize membrane serviceability or minimize footprint
- Easily expandable between 2 to 12 membrane units to provide increased flow demand to meet customer requirements and future needs (see equipment specifications for available expansion options)

M41GP 12 MEMBRANE VERTICAL UNIT

MODEL NO	Flow Rate Specifications GPM Nominal (m^3/hr)								Vessel Staging	Membrane Quantity	Customer Connection Specifications			Approximate Shipping Weight			
	Product		Feed		Reject		Reject/ Recycle				Feed	(FNPT) Product	Reject	Horizontal Orientation		Vertical Orientation	
	gpm	m^3/hr	gpm	m^3/hr	gpm	m^3/hr	gpm	m^3/hr						lb	kg	lb	kg
M41RGP002	2.8	0.6	3.7	0.8	0.9	0.2	4.5	1.0	1:1	2	1"	3/4"	1/2"	360	163	360	163
M41RGP003	4	0.9	5.3	1.2	1.3	0.3	3.5	0.8	1:1:1	3	1"	3/4"	1/2"	392	178	392	178
M41RGP004	5.2	1.2	6.9	1.6	1.7	0.4	2.75	0.6	1:1:1:1	4	1"	3/4"	1/2"	423	192	423	192
M41RGP005	6.3	1.4	8.4	1.9	2.1	0.5	2	0.5	1:1:1:1:1	5	1"	3/4"	1/2"	455	206	455	206
M41RGP006	7.5	1.7	10.0	2.3	2.5	0.6	3	0.7	1:1:1:1:1:1	6	1"	3/4"	1/2"	490	222	541	245
M41RGP008	10	2.3	13.3	3.0	3.3	0.7	6	1.4	2:2:1:1:1:1	8	1"	1"	1/2"	658	298	608	276
M41RGP010	12.5	2.8	16.7	3.8	4.2	1.0	8	1.8	3:2:2:1:1:1	10	1"	1"	1/2"	688	312	688	312
M41RGP012	15	3.4	20.0	4.5	5	1.1	8	1.8	3:3:2:2:1:1	12	1"	1"	1/2"	759	344	768	348

DIMENSIONS





NOMINAL DESIGN PARAMETERS

Configuration	Multi-Stage, Single Pass
Feed Water Source	Well or Softened
Prefiltration Requirements	5 µ nominal (included)
Feed Water Fouling Index	Silt Density Index (SDI) < 3
Feed Water Temperature	77°F (25°C)*
Inlet Pressure Requirement	25 - 50 PSIG (172 - 345 KPA)
Product Pressure Available	15 PSIG (103 KPA)
System Recover (Nominal)	75%
Performance Basis	A specific computer projection must be run for each individual application.

* Lower temperature may require larger booster pump.

If any of the feed water parameters are not within the limits given, contact Evoqua Water Technologies Technical Support.

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WATER TECHNOLOGIES

VANTAGE® M41 SELECT (RS) SERIES REVERSE OSMOSIS UNITS

THE CLEAR ADVANTAGE IN MEMBRANE SYSTEMS

Vantage® Reverse Osmosis (RO) units are pre-engineered and pre-assembled units designed for a variety of industrial and commercial applications. Vantage RO units offer you the greatest flexibility possible from a standard unit. Product lines within the Vantage single-pass RO family include the MicRO-Flex, M21, M41GP, M43, M83, M84 and M86; each designed for a specific range of flow rates.

Each M41 RS series RO unit consists of a vertical centrifugal high pressure feed pump with Optional Variable Frequency Drive (VFD), your choice of fiberglass reinforced plastic (FRP) or stainless steel (SST) pressure vessels, full-fit spiral wound thin-film composite (TFC) membranes, PVC/PEX low pressure feed, reject, recycle and product piping, stainless steel high pressure piping/rubber hose and a microprocessor controller.

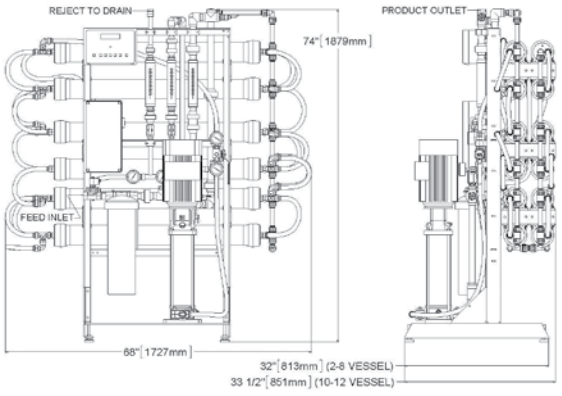
Vantage M41 RS Unit Benefits

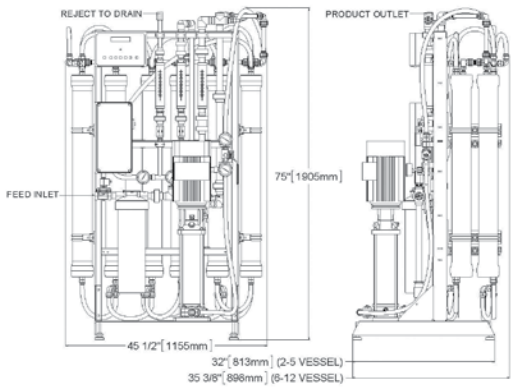
- Low energy TFC full fit membranes ensure optimum water quality
- Optional SST or FRP pressure vessels
- Microprocessor-based controller provides user-friendly programmable controls
- Optional VFD Controlled Feed Pump
- Auxiliary equipment interface provides system-wide control
- Reject recycle maximizes water recovery and minimizes waste
- Compact footprint saves valuable floor space
- Configurable in horizontal or vertical RO housing orientation to either maximize membrane serviceability or minimize footprint
- Easily expandable between 2 to 12 membrane units to provide increased flow demand to meet customer requirements and future needs (see equipment specifications for available expansion options)
- All M41RS (Select) units come standard with an RSVP (validation package) including NIST traceable calibrated certifications, certificates of conformance, and a installation/operational qualification (IOQ) protocol document

M41RS 12 MEMBRANE VERTICAL UNIT

MODEL NO	Flow Rate Specifications GPM Nominal (m^3/hr)								Vessel Staging	Membrane Quantity	Customer Connection Specifications (FNPT)			Approximate Shipping Weight			
	Product		Feed		Reject		Reject/ Recycle				Feed	Product	Reject	Horizontal Orientation		Vertical Orientation	
	gpm	m^3/hr	gpm	m^3/hr	gpm	m^3/hr	gpm	m^3/hr						lb	kg	lb	kg
M41RS002	2.8	0.6	3.7	0.8	0.9	0.2	5.0	1.1	1:1	2	1"	3/4"	1/2"	380	172	380	172
M41RS003	4.0	0.9	5.3	1.2	1.3	0.3	4.0	0.9	1:1:1	3	1"	3/4"	1/2"	412	187	412	187
M41RS004	5.2	1.2	6.9	1.6	1.7	0.4	3.0	0.7	1:1:1:1	4	1"	3/4"	1/2"	443	201	443	201
M41RS005	6.3	1.4	8.4	1.9	2.1	0.5	3.0	0.7	1:1:1:1:1	5	1"	3/4"	1/2"	475	215	475	215
M41RS006	7.5	1.7	10.0	2.3	2.5	0.6	2.0	0.5	1:1:1:1:1:1	6	1"	3/4"	1/2"	510	231	511	232
M41RS008	10.0	2.3	13.3	3.0	3.3	0.7	4.0	0.9	2:2:1:1:1:1	8	1"	1"	1/2"	540	245	558	253
M41RS010	12.5	2.8	16.7	3.8	4.2	1.0	6.0	1.4	3:2:2:1:1:1	10	1"	1"	1/2"	608	276	623	283
M41RS012	15.0	3.4	20.0	4.5	5.0	1.1	5.0	1.1	3:3:2:2:1:1	12	1"	1"	1/2"	640	290	688	312

DIMENSIONS





NOMINAL DESIGN PARAMETERS

Configuration	Multi-Stage, Single Pass
Feed Water Source	Well or Softened
Prefiltration Requirements	5 µ nominal (included)
Feed Water Fouling Index	Silt Density Index (SDI) < 3
Feed Water Temperature	65°F (18.3°C)*
Inlet Pressure Requirement	25 - 50 PSIG (172 - 345 KPA)
Product Pressure Available	15 PSIG (103 KPA)
System Recover (Nominal)	75%
Performance Basis	A specific computer projection must be run for each individual application.

* Lower temperature may require larger booster pump.

If any of the feed water parameters are not within the limits given, contact Evoqua Water Technologies Technical Support.

CIP (CLEAN-IN-PLACE) SERIES CLEANING SKIDS

Evoqua Water Technologies CIP Cleaning Skids are designed for on-site cleaning of reverse osmosis (RO) systems. They can accommodate cleaning flow rates of 30 – 225 gallons per minute (gpm), and are compatible with TFC or CA membrane elements. These factory assembled, tested and field-ready cleaning skids offer a convenient and economical way to maximize your RO investment.

CIP Series Features

- 304SS centrifugal pump
- LPE (linear polyethylene) chemical tank with cover
- Recirculation valve for chemical mixing
- Low feed pressure switch for pump protection
- Tank drain valve
- SCH 80 PVC piping
- Polyurethane-coated steel frame
- Cartridge filtration
- Flowmeter
- Temperature indicator
- Pump discharge pressure indicator
- NEMA 4 electrical enclosures:
  - U.L.
  - Pump motor disconnect switch
  - Power on light
  - Pump run light
  - Low tank level alarm

CIP Series Benefits

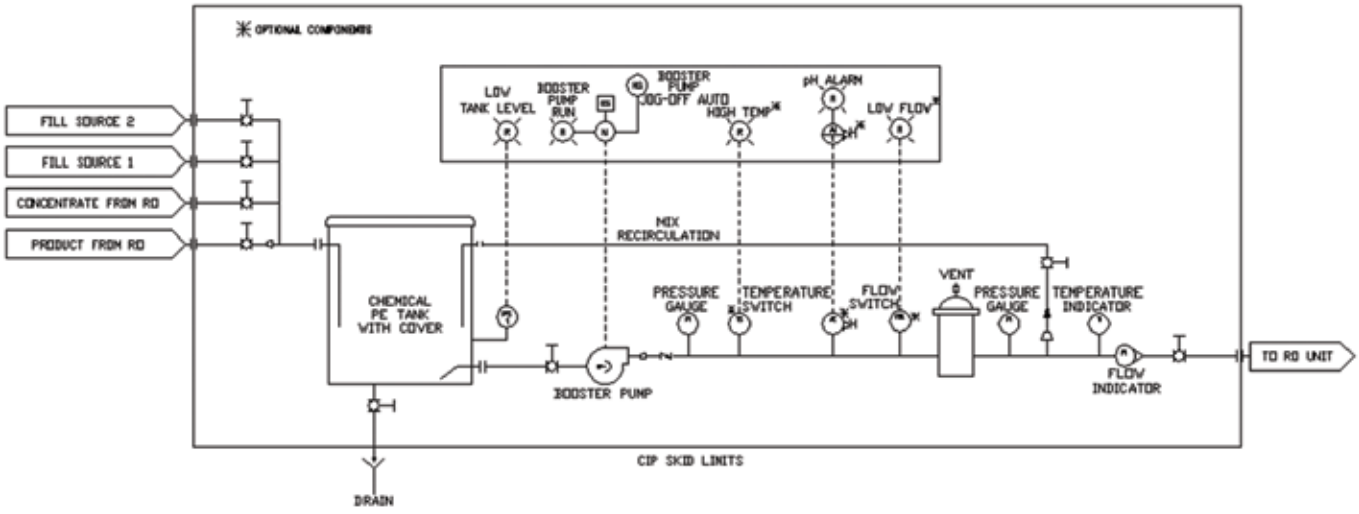
- Portability for quick and easy on-site cleaning (models CIP-30 and 60)
- Rugged construction that stands up to all cleaning chemicals
- Recommended by the membrane element manufacturers

SYSTEM SPECIFICATIONS

					System Dimensions H x W x D*		Operating Weight Industrial		Electrical Requirements	
Model Number	**Flow Rate at 60 psi**	**Tank Capacity (gallons)**	**Connection Size**	**Base**	**inch**	**cm**	**lb**	**(kg)**	**Pump**	**Electrical**
CIP-30	30	90	1-1/2"	Mobile	64 x 41 x 72	26 x 16 x 28	1250	(567)	5 HP	240/480V/60
CIP-60	60	200	2"	Mobile	69 x 41 x 72	27 x 16 x 28	2600	(1179)	5 HP	240/480V/60
CIP-90	90	275	2"	Fixed	69 x 51 x 90	27 x 20 x 35	3500	(1588)	10 HP	240/480V/60
CIP-150	150	440	3"	Fixed	69 x 64 x 106	27 x 25 x 42	6000	(2722)	10 HP	240/480V/60
CIP-225	225	800	3"	Fixed	78 x 78 x 128	31 x 31 x 50	9500	(4309)	15 HP	240/480V/60

*Dimensions are for skid-mounted equipment only, additional space for portable ion exchange units is required.

PROCESS AND INSTRUMENTATION DIAGRAM



CLEANING SKID OPTIONS

Description
pH Monitor
High Temperature Switch
Flow Switch
1" x 25' Hose Kit
1-1/2" x 25' Hose Kit
2" x 25' Hose Kit
3" x 25' Hose Kit

Vantage® M284 Reverse Osmosis Systems

See All Reverse Osmosis (RO) Systems / Nanofiltration Systems

Vantage® M284 Reverse Osmosis (RO) units are pre-engineered and pre-assembled units designed for a variety of industrial and commercial applications. RO membranes typically remove 90-99.9% of suspended and dissolved solids and can remove bacteria and viruses. M284 units are two pass RO systems.

- Two pass design produces higher water quality than single pass systems,
- Compact footprint saves valuable floor space
- Quick equipment delivery keeps project moving fast
- Clean in place connections maximize system serviceability
- Comprehensive factory testing performed at our ISO9001 certified factory

Description

Reverse osmosis membrane technology for industrial applications. Vantage® series single-pass 8-inch reverse osmosis systems are designed for a variety of large industrial and commercial applications requiring high quality equipment with a fast delivery and competitive price. Two pass RO systems produce higher water quality than single pass systems. These pre-engineered, pre-assembled and factory tested units minimize installation and start-up time. With simple utility connections and easy to set up controls, the unit is ready for quick on-line service. Vantage RO systems serves process water generation industries such as Power, General Industry, Food and Beverage, Pharmaceutical, Microelectronics, Solar, Data Centers, Commercial facilities.

Features

FEATURES

- Choice of brackish water of low energy TFC membranes (400ft2/440ft2) to ensure optimum water quality
- High pressure 316 stainless steel vertical multistage feed pumps
- ASME Code FRP, RO pressure vessels
- Pressure relief protection
- PVC low pressure feed, product and reject piping, 316L stainless steel high pressure piping
- Industrial coated carbon steel frame
- Dry contacts are provided for chemical feed, pretreatment equipment, storage tank levels, and pressure switches
- All alarm and shut down conditions are indicated on the control panel

Specs

Flow Rate, Minimum: gpm	50
Flow Rate, Maximum: gpm	100
Number Of Passes	Two
Nominal Recovery Rate	85%

Vantage® M286 Reverse Osmosis Systems

See All Reverse Osmosis (RO) Systems / Nanofiltration Systems

Vantage® M286 Reverse Osmosis (RO) units are pre-engineered and pre-assembled units designed for a variety of industrial and commercial applications. RO membranes typically remove 90-99.9% of suspended and dissolved solids and can remove bacteria and viruses. M286 units are two pass RO systems.

- Two pass design produces higher water quality than single pass systems
- Compact footprint saves valuable floor space
- Quick equipment delivery keeps project moving fast
- Clean in place connections maximize system serviceability
- Comprehensive factory testing performed at our ISO9001 certified factory

Description

Reverse osmosis membrane technology for industrial applications. Vantage® series single-pass 8-inch reverse osmosis systems are designed for a variety of large industrial and commercial applications requiring high quality equipment with a fast delivery and competitive price. Two pass RO systems produce higher water quality than single pass systems. These pre-engineered, pre-assembled and factory tested units minimize installation and start-up time. With simple utility connections and easy to set up controls, the unit is ready for quick on-line service. Vantage RO systems serves process water generation industries such as Power, General Industry, Food and Beverage, Pharmaceutical, Microelectronics, Solar, Data Centers, Commercial facilities.

Features

FEATURES

- Choice of brackish water of low energy TFC membranes (400ft2/440ft2) to ensure optimum water quality
- High pressure 316 stainless steel vertical multistage feed pumps
- ASME Code FRP, RO pressure vessels
- Pressure relief protection
- PVC low pressure feed, product and reject piping, 316L stainless steel high pressure piping
- Industrial coated carbon steel frame
- Dry contacts are provided for chemical feed, pretreatment equipment, storage tank levels, and pressure switches
- All alarm and shut down conditions are indicated on the control panel

Specs

Flow Rate, Minimum: gpm	150
Flow Rate, Maximum: gpm	300
Number Of Passes	Two
Nominal Recovery Rate	85%

По вопросам продаж и поддержки обращайтесь:

Алматы (727)345-47-04
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
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Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
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Сургут (3462)77-98-35
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Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
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Тюмень (3452)66-21-18
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Улан-Удэ (3012)59-97-51
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