



## 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<sup>2</sup>) 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 <sup>3</sup> /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	
<b>M86R072</b>	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)
<b>M86R090</b>	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)
<b>M86R126</b>	560 (127.2)	747 (170.0)	187 (42.5)	14:7	6	126	8"	6"	4"	460 VAC	10	200	14,800 (6713)
<b>M86R162</b>	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
<b>SKID Length</b>	279" (7087 mm)		287" (7747 mm)	
<b>SKID Width</b>	66" (1676 mm)		94" (2438 mm)	
<b>SKID Height</b>	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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