# PURON PLUS MBR Package Systems

### Pre-engineered Standard Systems for Wastewater Treatment

PURON<sup>®</sup> PLUS MBR systems are pre-engineered membrane bioreactor (MBR) package plants. With capacities ranging up to 260,000 GPD, the PURON PLUS MBR system is designed for both municipal and industrial (i.e.: food, dairy, beverage, leachate, produced water, etc.) wastewater applications with feed BOD concentrations up to 2,000 mg/L.

Featuring Koch Membrane Systems submerged PULSION<sup>®</sup> MBR modules, these skid-mounted systems offer customers a complete and cost-effective design. The virtually unbreakable high performance PURON membrane provides consistent high quality effluent with total suspended solids <5 mg/L. Coupled with a comprehensive biological system, the PURON PLUS MBR system can reduce BOD and Nitrogen concentrations down to 5 and 10 mg/L respectively.

# BENEFITS

- · Small footprint
- Flexible layout
- Turnkey solution
- · Fast delivery and installation
- · Single source supply
- Optimized design for application
- Simple operation
- · Minimal civil works required



## **EP-100 Package System Shown**



# DATASHEET | PAGE 2

#### **Features**

		EP-Series Filtration System	P-Series Filtration System	EP-Series Complete System	P-Series Complete System
	Fine Screening	0	0	0	Х
Pre-Treatment	Chemical Dosing			0	0
	Feed Equipment			0	0
	Bioreactor Tanks			Х	Х
	Anoxic Zone and Mixing Equipment			Х	Х
Bioreactor	Process Blower			Х	Х
	Fine Bubble Diffuser Grid			Х	Х
	Bioreactor Valves			Х	Х
	Bioreactor Instrumentation			Х	Х
	Membranes	Х	Х	Х	Х
	Membrane Tank	Х	Х	Х	Х
	Membrane Blowers	Х	Х	Х	Х
	Train Redundancy		Х		Х
	Membrane Feed System	Х	Х	Х	Х
	Feed Pump VFD		Х		Х
Filtration System	Permeate Extraction System	Х	Х	Х	Х
	Filtration System Valves	Х	Х	Х	Х
	Filtration System Instrumentation	Х	Х	Х	Х
	CIP System	0	Х	0	Х
	Upgraded PLC/HMI	0	Х	0	Х
	Effluent Turbidity	0	0	0	0
	Duty-Standby Blower	0	Х	0	Х
Ancillary and	Drain Pump	0	0	0	0
Post-Treatment	Shelf Spares	0	0	0	0
	Disinfection System	0	0	0	0

X: Included, O: Optional

#### **Sizes**

AADF System Capacity				Membrane			
	Indu	strial	Municipal				
Model	1,000 Gal / Day	m³ / Day	1,000 Gal / Day	m³ / Day	Area (m²)	Туре	# of Trains
EP-50	30	114	65	246	348	LE-8 (1)	1
EP-100	60	227	130	491	696	LE-8 (2)	1
EP-200	120	454	260	983	1,392	LE-16 (2)	1
P-100	60	227	130	491	696	LE-8 (2)	2
P-200	120	454	260	983	1,392	LE-16 (2)	2

\* Typical municipal daily peaking factor for municipal systems is 2X.\*\* Final system sizing is application dependent and based on various design criteria, including, but not limited to Influent temperature and BOD concentration.

#### Installation

			Piping Connections			
System	Footprint	Electrical Power (460V, 60Hz)	Feed	WAS	Permeate	
EP-50	20' x 29' / 20m x 9m	30 HP, 40A	6" / DN150	3" / DN80	6" / DN150	
EP-100	26' x 37' / 8m x 11m	40 HP, 55A	6" / DN150	3" / DN80	6" / DN150	
EP-200	32' x 37' / 10m x 11m	50 HP, 65A	8" / DN200	3" / DN80	8" / DN200	
P-100	33' x 49' / 10m x 15m	75 HP, 100A	6" / DN150	3" / DN80	6" / DN150	
P-200	39' x 49' / 12m x 15m	85 HP, 110A	8" / DN200	3" / DN80	8" / DN200	

Systems are delivered as pre-assembled skids. Interconnecting piping will be provided to connect skids within manufacturer's scope of supply and designated layout. All skids are pre-wired with local disconnects. System assembly and wiring to be conducted by a qualified contractor. KMS to provide installation support and startup services.

## **OPEX**

	Estimated E	nergy Usage	Estimated Ch	emical Usage
System	\$ / 1k Gal.	\$ / m³	\$ / 1k Gal.	\$ / m³
EP-50	0.283	0.075	.005	.001
EP-100	0.234	0.062	.005	.001
EP-200	0.203	0.054	.005	.001
P-100	0.234	0.062	.005	.001
P-200	0.203	0.054	.005	.005

Energy costs are estimates only and will be better defined with final system design. Values are based on a complete municipal system including the bioreactor equipment. \* Power based on 13 cents per kwh.



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