

# PRO E-Cell\* Series

## FACT SHEET

Integrated RO/EDI machines 50 to 200 gpm 60 Hz



### Features

- RO and EDI mounted on common skid
- PRO E-Cell 50 and 100 are 2 pass RO designs
- PRO E-Cell 150 and 200 are 1 pass RO designs
- RO Pump VFD(s) and EDI DC Drive mounted on skid
- RO permeate flush sequence on shutdown and divert to drain on startup
- Allen Bradley control system with Compact Logix PLC and PanelView Plus 1000 interface
- UL/cUL Electrical Panel

### Instrumentation

|                      |                                                                                                                 |
|----------------------|-----------------------------------------------------------------------------------------------------------------|
| Flow Meters          | RO Permeate, RO Concentrate<br>EDI Product, EDI Concentrate, EDI Electrode                                      |
| Pressure Gauge       | Pre- & Post Cartridge Filter<br>Primary, Final, inter stage, RO Permeate,<br>RO Concentrate, RO Pump Discharge, |
| Pressure Switch      | RO Feed, RO Permeate<br>RO Concentrate                                                                          |
| Pressure Transmitter | RO Primary, RO Final<br>RO Permeate, EDI Product, EDI Concentrate,<br>EDI Electrode, EDI Dilute Feed            |
| pH Meter             | RO Feed pass 1<br>(also pass 2 for 50-100 model)                                                                |
| ORP (Optional)       | RO Feed pass 1                                                                                                  |

### Accessories

- PRO Multi-Media filters
- PRO Activated Carbon and Softeners
- PRO Clean-in-Place units
- PRO Chemical Feed Systems
- Transfer Pumps and Storage Tanks

### Operating Parameters

|                                 |                        |
|---------------------------------|------------------------|
| Design Recovery RO <sup>1</sup> | 75% Pass 1; 85% Pass 2 |
| Design Recovery EDI             | 90-95%                 |
| Design Temperature              | 60°F (16°C)            |
| Operating Temperature Range     | 40-85°F (5-29°C)       |
| System Inlet Pressure           | 30-60 PSI (2-4 Bar)    |

<sup>1</sup>Recovery Rate can vary +/- 5%

### Materials of Construction

|                              |                              |
|------------------------------|------------------------------|
| High-pressure piping         | 316 Stainless Steel, Sch. 10 |
| Low-pressure RO & EDI piping | PVC, Sch. 80                 |
| Frame                        | Epoxy-coated carbon steel    |
| Enclosure                    | Nema 4 carbon steel          |
| Clamps/fittings              | Zinc-plated                  |

### Membrane Elements and Housings

|                                 |                                |
|---------------------------------|--------------------------------|
| Model (50-100) Veolia           | AK-400                         |
| Model (150-200)                 | Veolia PRO-RO-400-HR-WT        |
| Average membrane flux (50-100)  | 12 GFD pass 1<br>21 GFD pass 2 |
| Average membrane flux (150-200) | 14 GFD                         |
| Membrane rejection              | 99.0 to 99.5%                  |
| Housing material                | Fiberglass                     |
| Housing Pressure Rating         | 450 psi                        |

## EDI Stacks

Model ..... Veolia E-Cell MK-3X  
 Stack product flow rate, nom ..... 16.7 gpm (3.8 m³/hr)  
 Performance ..... 16 MOhm-cm  
 Silica Removal ..... <10 ppb

## Cartridge Filtration

Housing model ..... Veolia HX-0740-80-V316  
 Housing material ..... 316 Stainless Steel  
 Cartridge filter ..... 1-µ nom, ROSave.Zs\*,  
 RO.Zs01-40XK

## PRO E-Cell Models

| MODEL                                 | PRO E-Cell 50DP                                      | PRO E-Cell 100DP                                         | PRO E-Cell 150            | PRO E-Cell 200            |
|---------------------------------------|------------------------------------------------------|----------------------------------------------------------|---------------------------|---------------------------|
| RO Permeate Rate <sup>2</sup> :       | 52.5 gpm (11.9 m³/hr)                                | 105 gpm (23.9 m³/hr)                                     | 158 gpm (36 m³/hr)        | 210 gpm (48 m³/hr)        |
| RO Concentrate Rate:                  | 21 gpm (4.8 m³/hr)                                   | 42 gpm (9.5 m³/hr)                                       | 52.7 gpm (12 m³/hr)       | 70 gpm (16 m³/hr)         |
| Concentrate Recycle:                  | 10 gpm (2.3 m³/hr)                                   | 10 gpm (2.3 m³/hr)                                       | NA                        | NA                        |
| RO Feed Rate:                         | 74 gpm (16.8 m³/hr)                                  | 147 gpm (33.4 m³/hr)                                     | 211 gpm (48 m³/hr)        | 280 gpm (63.6 m³/hr)      |
| EDI Product Rate:                     | 50 gpm (11.4 m³/hr)                                  | 100 gpm (22.7 m³/hr)                                     | 150 gpm (34 m³/hr)        | 200 gpm (45 m³/hr)        |
| EDI Concentrate Rate (max):           | 1.6 gpm (0.36 m³/hr)                                 | 3.2 gpm (0.73 m³/hr)                                     | 4.7 gpm (1.1 m³/hr)       | 6.3 gpm (1.4 m³/hr)       |
| EDI Electrode Rate:                   | 1 gpm (0.23 m³/hr)                                   | 2.1 gpm (0.48 m³/hr)                                     | 3.2 gpm (0.73 m³/hr)      | 4.2 gpm (0.95 m³/hr)      |
| Pumps and Motors                      |                                                      |                                                          |                           |                           |
| Model:                                | SS8512 Pass 1<br>SS8512 Pass 2                       | SS24007 Pass 1<br>SS12509 Pass 2                         | SS24009                   | AS40409                   |
| Manufacturer:                         | Veolia/Tonkafllo*                                    | Veolia/Tonkafllo                                         | Veolia/Tonkafllo          | Veolia/Tonkafllo          |
| Quantity:                             | 2                                                    | 2                                                        | 1                         | 1                         |
| Motor Power and type:                 | 20HP (15 KW) TEFC Pass 1<br>20HP (15 KW) TEFC Pass 2 | 50 Hp (37 KW) TEFC Pass 1<br>30 Hp (22.5 KW) TEFC Pass 2 | 60 Hp (45 KW) TEFC        | 75 Hp (56.3 KW) TEFC      |
| Installed Power:                      | 30 KW                                                | 60 KW                                                    | 45 KW                     | 56.3 KW                   |
| Membrane Elements and Housings        |                                                      |                                                          |                           |                           |
| Membrane Quantity:                    | 20 Pass 1 ; 12 Pass 2                                | 36 Pass 1 ; 18 Pass 2                                    | 42                        | 54                        |
| Memb. Housing Style:                  | 4 element long,<br>4 port                            | 6 element long,<br>4 port                                | 6 element long,<br>4 port | 6 element long,<br>4 port |
| Banking Arrangement:                  | 3→2 Pass 1 ; 2→1 Pass 2                              | 4→2 Pass 1 ; 2→1 Pass 2                                  | 5→2                       | 6→3                       |
| EDI Stacks                            |                                                      |                                                          |                           |                           |
| Stack Model :                         | Veolia E-Cell MK-3X                                  | Veolia E-Cell MK-3X                                      | Veolia E-Cell MK-3X       | Veolia E-Cell MK-3X       |
| Stack Quantity:                       | 2                                                    | 4                                                        | 6                         | 8                         |
| Power (DC drive, 300 VDC)             | 16 A max                                             | 31.2 A max                                               | 46.8 A max                | 62.4 A max                |
| Cartridge Filtration                  |                                                      |                                                          |                           |                           |
| Housing Model:                        | HX-0740-3.0-V-316                                    | HX-0740-3.0-V-316                                        | HX-0740-3.0-V-316         | HX-0740-3.0-V-316         |
| Housing Quantity:                     | 1                                                    | 2                                                        | 2                         | 2                         |
| Cartridge Filter Model:               | ROSave.Zs, RO.Zs01-40XK                              | ROSave.Zs, RO.Zs01-40XK                                  | ROSave.Zs, RO.Zs01-40XK   | ROSave.Zs, RO.Zs01-40XK   |
| Cartridge Filter Length:              | 40-inch (120 cm)                                     | 40-inch (102 cm)                                         | 40-inch (102 cm)          | 40-inch (102 cm)          |
| Cartridge Filter Qty:                 | 7                                                    | 14                                                       | 14                        | 14                        |
| Installation and Utility Requirements |                                                      |                                                          |                           |                           |
| RO Inlet:                             | 3" ANSI flange                                       | 3" ANSI flange                                           | 4" ANSI flange            | 4" ANSI flange            |
| RO Reject to Drain:                   | 1.5" ANSI flange                                     | 2" ANSI flange                                           | 1.5" ANSI flange          | 2" ANSI flange            |
| RO Product Dump:                      | 1.5" ANSI flange                                     | 3" ANSI flange                                           | 3" ANSI flange            | 4" ANSI flange            |
| EDI Product Outlet:                   | 1.5" ANSI flange                                     | 3" ANSI flange                                           | 3" ANSI flange            | 4" ANSI flange            |
| EDI Product Dump:                     | 1.5" ANSI flange                                     | 3" ANSI flange                                           | 3" ANSI flange            | 4" ANSI flange            |
| EDI Concentrate Outlet:               | 0.5" ANSI flange                                     | 0.5" ANSI flange                                         | 0.5" ANSI flange          | 0.5" ANSI flange          |
| EDI Electrode Outlet:                 | 0.5" ANSI flange                                     | 0.5" ANSI flange                                         | 0.5" ANSI flange          | 0.5" ANSI flange          |
| Inlet Water Pressure:                 | 30-60 psig                                           | 30-60 psig                                               | 30-60 psig                | 30-60 psig                |
| Air Pressure:                         | 80 psi, oil-free                                     | 80 psi, oil-free                                         | 80 psi, oil-free          | 80 psi, oil-free          |
| Drain to be Sized for:                | 95 gpm (22 m³/hr)                                    | 150 gpm (35 m³/hr)                                       | 220 gpm (50 m³/hr)        | 280 gpm (64 m³/hr)        |
| Power:                                | 460 VAC, 3-phase, 60Hz                               | 460 VAC, 3-phase, 60Hz                                   | 460 VAC, 3-phase, 60Hz    | 460 VAC, 3-phase, 60Hz    |
| Control Circuit                       | 120 VAC, 1-phase, 60Hz                               | 120 VAC, 1-phase, 60Hz                                   | 120 VAC, 1-phase, 60Hz    | 120 VAC, 1-phase, 60Hz    |
| Skid Dimensions and Weights           |                                                      |                                                          |                           |                           |
| Height:                               | 96" (244 cm)                                         | 96" (244 cm)                                             | 90" (229 cm)              | 90" (229 cm)              |
| Width:                                | 72" (183 cm)                                         | 58" (147 cm)                                             | 80" (203 cm)              | 80" (203 cm)              |
| Length:                               | 197" (500 cm)                                        | 277" (704 cm)                                            | 282" (716 cm)             | 282" (716 cm)             |
| Shipping Weight:                      | 9050 lb. (4150 kg)                                   | 13650 lb. (6250 kg)                                      | 12350 lb. (5650 kg)       | 14600 lb. (6650 kg)       |
| Operating Weight:                     | 11150 lb. (5100 kg)                                  | 17050 lb. (7750 kg)                                      | 15200 lb. (6950 kg)       | 18250 lb. (8300 kg)       |

<sup>2</sup>Maximum permeate rate listed at design temperature. Permeate rate can be reduced by up to 15%.

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