

### Ultra Hydraulic Pressure Booster (HPB Ultra™) For Reverse Osmosis Desalination

#### Operating Parameters

|                             |                                          |                |
|-----------------------------|------------------------------------------|----------------|
| Model *                     | HPB-90 Ultra                             |                |
| Liquid                      | Seawater, Brackish water,<br>Fresh Water |                |
| Pump Operating Ambient Temp | 33 - 158 °F                              | 0.6 - 70.0 °C  |
| Maximum Storage Temp        | 185 °F                                   | 85.0 °C        |
| Minimum Pump-Side Flow      | 176.1 gpm                                | 40 m³/h        |
| Maximum Pump-Side Flow **   | 457.8 gpm                                | 104 m³/h       |
| Maximum Operating Pressure  | 1800 psi                                 | 124 bar        |
| Nominal Vibration           | ≤3.8mm/sec RMS                           | ≤0.15"/sec RMS |
| Nominal Sound               | <85 dBA                                  |                |
| Brine Outlet Pressure       | Varies upon design                       |                |
| Filtration Requirement      | 20 microns                               |                |

\* Subject to international patent applications

\*\* Range may vary

#### Performance

|                        |                                 |
|------------------------|---------------------------------|
| Maximum Boost Pressure | Contact FEDCO for specific data |
| Efficiency (Transfer)  | Up to 69.5%                     |
| Brine/Feed Mixing      | None                            |

#### Materials

|                           |                                          |
|---------------------------|------------------------------------------|
| Rotor                     | Super Duplex SS S32750 ASTM A276/479     |
| Bearings                  | Non-metallic                             |
| Casing (Inlet/Discharge)* | Zeron SS - Powder Coated ASTM A995-13 6A |
| Fasteners                 | 316 SS S31600 ASTM A193/A320/F593        |
| O-Rings                   | Buna N®                                  |
| Diffuser                  | Super Duplex SS S32750 ASTM A276/479     |
| Eye Bolts                 | N/A                                      |
| Baseplate                 | Carbon Steel - Painted ASTM A36          |
| Crating/Packaging         | Export-Wood                              |

\* Powder coating (RAL 6018) standard. Raw casting optional.

#### Miscellaneous

|                              |                           |
|------------------------------|---------------------------|
| Foundation                   | Per FEDCO supporting docs |
| Nozzle Loading               | Per FEDCO supporting docs |
| Pipe Flushing                | Per FEDCO supporting docs |
| Instrumentation Requirements | Per FEDCO supporting docs |
| Membrane Cleaning            | Per FEDCO supporting docs |
| Check Valve Location         | Per FEDCO supporting docs |
| Aux Valve Actuator           | Manual or FEDCO supply    |

#### Packaging/ Crating

|                             |                                     |          |
|-----------------------------|-------------------------------------|----------|
| Protective Covers           | Standard                            |          |
| Export Crating              | Standard                            |          |
| Additional Shipping Options | Available per customer requirements |          |
| Unit Weight (Dry)           | 75.7 lbs                            | 34.35 kg |

#### Hydraulic Design

|               |                                                                                                          |
|---------------|----------------------------------------------------------------------------------------------------------|
| Turbine       | Impeller and turbine vanes are custom designed and machined for optimal efficiency at design conditions. |
| Pump          | Impeller vanes and diffuser ring are built to customer specifications.                                   |
| Brine Control | Integral variable area auxiliary nozzle.                                                                 |

#### Fittings

|             |                                                                       |
|-------------|-----------------------------------------------------------------------|
| Pipe Joints | Feed Inlet/ Outlet 2" Cut Groove<br>Brine Inlet/ Outlet 2" Cut Groove |
|-------------|-----------------------------------------------------------------------|

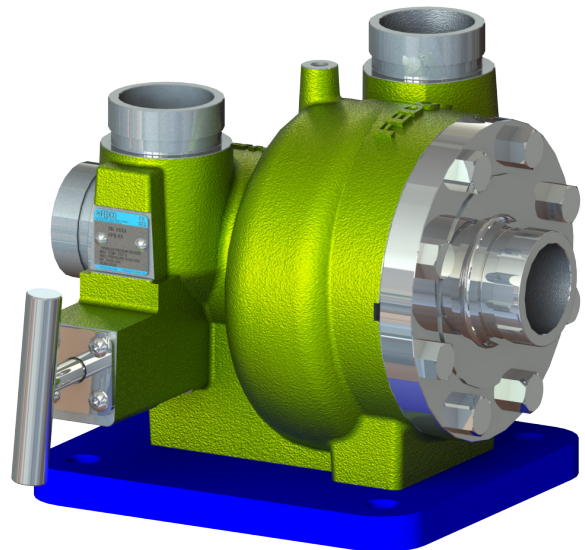
#### Bearings

|             |                                                     |
|-------------|-----------------------------------------------------|
| Radial      | Sleeve, product lubricated                          |
| Thrust      | Hydrostatic/ hydrodynamic type<br>Rotor-Flo™ design |
| Cooling     | Product fluid                                       |
| Lubrication | Product fluid                                       |

#### Testing and Inspection

|                                                                                                |          |
|------------------------------------------------------------------------------------------------|----------|
| Performance Test                                                                               | Standard |
| <small>* Hydraulic Institute (HI) Hydrostatic &amp; Centrifugal Pump Testing Standards</small> |          |
| Hydrostatic Test                                                                               | Standard |
| <small>* Hydraulic Institute (HI) Hydrostatic &amp; Centrifugal Pump Testing Standards</small> |          |
| Rotor Balance Certificate                                                                      | Standard |
| Visual/ Dimension Check                                                                        | Optional |
| Witness Test                                                                                   | Optional |
| Certified Test Data                                                                            | Optional |
| Material Certificates                                                                          | Optional |

\* General Code Groups, Associations, Laboratories, and Approval Bodies include the American Society for Testing and Materials (ASTM), the International Organization for Standardization (ISO), and the NSF International.



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NOTE: All numeric values are based on performance norms. Specific performance data is included with each individual unit. FEDCO reserves the right to make specification changes at any time without prior notice. Please contact your FEDCO representative for information. email: sales@fedco-usa.com

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