ecocirc® XL
High Efficiency Large Wet Rotor Circulator with Electronically Commutated Motor (ECM)

DESCRIPTION
The ecocirc® XL circulator is designed with a highly efficient electronically commutated permanent magnet motor (ECM Technology). Cast Iron model is designed for closed loop hydronic heating and cooling systems, and Stainless Steel body pump for plumbing systems or open loop heating and cooling systems.

CONSTRUCTION MATERIALS
Pump Body: Cast Iron or Stainless Steel
Impeller: Poly-phenylene Sulfide or Stainless Steel
Shaft: AISI 420 Stainless Steel
Rotor: Permanent Magnet
Bearing: Carbon Sleeve
All Other Wetted Parts: AISI 304 Stainless Steel
Insulation Class: F

SPECIFICATIONS
MODEL NO. FLOW HEAD HP RPM VOLTAGE CYCLE PHASE SPECIALS
SCHEDULE
CAST IRON BODY STAINLESS STEEL BODY RATED MOTOR CHARACTERISTICS
MODEL NUMBER PART NUMBER MODEL NUMBER PART NUMBER HP VOLTAGE PHASE Hz WATTS RANGE AMP RANGE
ecocirc XL 20-35 104300 ecocirc XL N 20-35 104450LF 1/12 115 1 50/60 6 - 85 0.1 - 1.3
ecocirc XL 36-45 104301 ecocirc XL N 36-45 104451LF 1/6 115 1 50/60 20 - 200 0.1 - 3.0
ecocirc XL 36-45 104302 ecocirc XL N 36-45 104452LF 1/6 208-230 1 50/60 20 - 200 0.1 - 1.5
ecocirc XL 15-75 104303 ecocirc XL N 15-75 104453LF 1/6 115 1 50/60 30 - 150 0.1 - 2.3
ecocirc XL 15-75 104304 ecocirc XL N 15-75 104454LF 1/6 208-230 1 50/60 30 - 150 0.1 - 1.1
ecocirc XL 55-45 104306 ecocirc XL N 55-45 104456LF 1/2 208-230 1 50/60 30 - 500 0.2 - 2.0
ecocirc XL 20-140 104308 ecocirc XL N 20-140 104458LF 1/2 208-230 1 50/60 35 - 470 0.2 - 2.0
ecocirc XL 65-130 104309 ecocirc XL N 65-130 104459LF 1 208-230 1 50/60 45 - 825 0.5 - 3.5
ecocirc XL 40-200 104312 ecocirc XL N 40-200 104462LF 1 208-230 1 50/60 45 - 825 0.5 - 3.5
ecocirc XL 70-145 104315 ecocirc XL N 70-145 104465LF 2 208-230 1 50/60 55 - 1400 0.6 - 6.0
ecocirc XL 40-275 104318 ecocirc XL N 40-275 104468LF 2 208-230 1 50/60 50 - 1400 0.6 - 6.0
ecocirc XL 65-130 104310 ecocirc XL N 65-130 104460LF 1 208-230 1 50/60 50 - 800 0.5 - 2.8/2.0
ecocirc XL 40-200 104313 ecocirc XL N 40-200 104463LF 1 208-230 1 50/60 50 - 800 0.5 - 2.8/2.0
ecocirc XL 95-160 104321 ecocirc XL N 95-160 104471LF 2 208-230 1 50/60 50 - 1250 0.5 - 4.4/2.0
ecocirc XL 27-320 104323 ecocirc XL N 27-320 104473LF 2 208-230 1 50/60 50 - 1500 0.5 - 4.4/3.0
ecocirc XL 110-180 104326 ecocirc XL N 110-180 104476LF 3 400-460 1 50/60 50 - 2000 0.5 - 3.7
ecocirc XL 45-375 104328 ecocirc XL N 45-375 104478LF 3 400-460 1 50/60 50 - 2150 0.5 - 4.0

Note: Where potable water is pumped, use a stainless steel booster. ecocirc XL pumps are recommended for indoor use only.

* Nominal HP
<table>
<thead>
<tr>
<th>MODEL NO</th>
<th>Nominal Motor HP</th>
<th>DIMENSIONS - INCHES (mm)</th>
<th>APPROX. SHIPPING WEIGHT LBS. (KG)</th>
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<td>A</td>
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<td>9.94 (252)</td>
<td>6.38 (162)</td>
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<td>6.38 (162)</td>
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<td>14.17 (360)</td>
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<td>14.44 (367)</td>
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<td>16.14 (410)</td>
<td>14.17 (360)</td>
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**DIMENSIONS AND WEIGHTS**

**FLANGE SIZE INCHES - NPT**

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<tr>
<th>MODEL NO</th>
<th># of Bolts</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
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<td>3.16 (80)</td>
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<td>3.44 (87)</td>
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**SINGLE PHASE PUMP DIMENSIONS**

**THREE PHASE PUMP DIMENSIONS**

1-1/2" is the diameter of the suction and discharge for the 2-bolt models.

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**ecocirc XL High Flow Performance Range Curve**

**ecocirc XL High Head Performance Range Curve**
SAFETY STANDARDS AND PROTECTION

- Enclosure: Class 2, IP44 (equivalent to NEMA Type 2)
- UL Listed to UL 778; UL 1004-1, 1004-7; and UL 60730-1
- cUL Listed to C22.2 #108
- Electronically Thermally Protected (Integrated Motor Protection)
- Motor Insulation Class: F
- Stainless steel models are NSF/ANSI-372 certified.

STANDARD OPERATING MODES

CONSTANT SPEED
The pump maintains a constant speed at any flow rate. The desired speed is set on the interface panel of the pump.

CONSTANT PRESSURE ($\Delta p$)
The pump maintains a constant differential pressure at any flow demand until the maximum speed is reached. The desired head of the pump can be set via user interface. Recommended for use in systems with small or constant pressure losses.

PROPORTIONAL PRESSURE ($\Delta p - v$)
The differential pressure continuously increases or decreases based on the flow demand. The set point head can be set on the pump user interface. Use for systems with large pressure losses.

NIGHT MODE
The pump will automatically reduce speed when there is an abrupt change in fluid temperature. The change in fluid temperature is from a boiler operating in night time setback mode. The built-in temperature sensor is used. (Fixed Speed, Constant Pressure, Proportional Pressure)

TEMPERATURE DEPENDENT OPERATING MODES

SET POINT TEMPERATURE ($\Delta p - T$)
The nominal differential pressure set point is modified based on the fluid temperature. Uses the built-in temperature sensor.

SET POINT TEMPERATURE ($T$)
The pump maintains a constant temperature in a system, such as a domestic hot water system or a single temperature heating system. Uses the built-in temperature sensor.

DIFFERENTIAL TEMPERATURE ($\Delta T$)
The pump maintains a constant differential temperature between the built-in and external temperature sensors.

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INPUT SIGNALS

- One 0-10V (Analog): Speed Control by external controller
- One 4-20mA (Analog): Connection with an external differential pressure sensor for pressure control mode (two differential pressure sensor ranges: 0-15 and 0-30 PSIG) on single phase models.
- Two absolute pressure sensors 4-20mA (Analog) input for three phase models.
- One external temperature sensor input for Differential Temp operating mode.
- Sensor Type: KYT38, P/N: 104502
- One built-in temperature sensor for Set Point Temp and Differential-Temp operating mode.

REMOTE BUILDING MANAGEMENT SYSTEM CAPABILITIES

- The pump can be monitored or controlled by a signal from BMS (Building Management System). Built-in protocols are BACnet and Modbus. Direct connection to a PC is available.
- An optional wireless module can be added to create a short range wireless field for remote connection to the pump. An internet browser can be used to program the advanced settings. Module P/N: 104500

START/STOP CONNECTIONS: Connect to external dry contact relay or use with a thermostat.

OUTPUT RELAY (single phase): Normally Open Dry Contact Relay for Fault Mode indication.

OUTPUT RELAYS (three phase): Two Normally Open Dry Contact Relays for Fault Mode and Run indication.

ONBOARD USER INTERFACE

![Onboard User Interface Diagram]

1. Control mode button
2. Control mode indicators
3. Parameter button
4. Parameter indicators
5. Setting buttons
6. Numeric display
7. Power indicator
8. Status / Fault indicator
9. Remote control indicator