

CIRCULATORS ecocirc® XL

High efficiency large wet rotor pump for heating, cooling and potable water systems

Description

The ecocirc XL is a high efficiency, variable speed, wet rotor pump with integrated drive. The circulator is available in cast iron or lead-free bronze and has a broad operating temperature range of 14°F to 230°F (-10°C to 110°C). The ecocirc XL is suitable for both hot and chilled water systems.

The ecocirc XL circulator is designed with a highly efficient electronically commutated permanent magnet motor (ECM/PM Technology). This circulator can enhance hydronics systems with superior quality and dependability. State-of-the-art hydraulics, advanced motor design, intelligent controls, and smart communication capabilities highlight expert engineering across a board range of HVAC and plumbing applications.

Materials of Construction

Pump Body: Cast Iron or Lead-Free* Bronze
 Impeller: Poly-phenylene Sulfide or Stainless Steel
 Shaft: AISI 420 Stainless Steel
 Rotor: Permanent Magnet
 Bearing: Carbon Sleeve
 Gasket/O-Ring: EPDM
 All Other Wetted Parts: AISI 304 Stainless Steel
 Motor Type: Electronically Commutated Motor /Permanent Magnet
 Motor Insulation Class: F



Operating Data

Maximum Working Pressure: 175 PSI (12 Bar)
 Minimum Working Temperature: 14°F (-10°C)
 Maximum Working Temperature: 230°F (110°C)
 Ambient Temperature Range: 32°F - 104°F (0°C - 40°C)

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
- CSA certified to NSF/ANSI 372 that product contains less than 0.25% lead content by weight on wetted surface

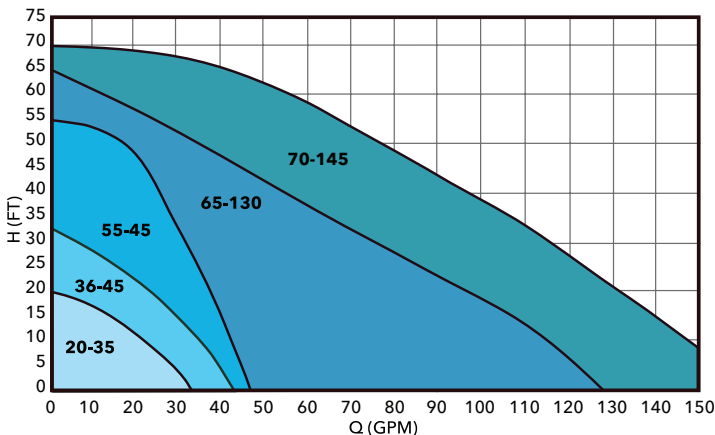
Cast Iron Body		Lead-Free Bronze Body*		Rated Motor Characteristics						
Model Number	Part Number	Model Number	Part Number	HP**	Voltage	Phase	Hz	Watts Range	AMP Range	Speed Range
ecocirc XL 20-35	104300	ecocirc XL B 20-35	104400LF	1/12	115	1	50/60	6-85	0.1 - 1.3	1500-3500
ecocirc XL 36-45	104301	ecocirc XL B 36-45	104401LF	1/6	115	1	50/60	20-200	0.1 - 3.0	1500-4450
ecocirc XL 36-45	104302	ecocirc XL B 36-45	104402LF	1/6	208-230	1	50/60	20-200	0.1 - 1.5	1500-4450
ecocirc XL 15-75	104303	ecocirc XL B 15-75	104403LF	1/6	115	1	50/60	30-150	0.1 - 2.3	1500-3000
ecocirc XL 15-75	104304	ecocirc XL B 15-75	104404LF	1/6	208-230	1	50/60	30-150	0.1 - 1.1	1500-3000
ecocirc XL 55-45	104306	ecocirc XL B 55-45	104406LF	1/2	208-230	1	50/60	30-500	0.2 - 2.0	1500-4500
ecocirc XL 20-140	104308	ecocirc XL B 20-140	104408LF	1/2	208-230	1	50/60	35-470	0.2 - 2.0	1500-3550
ecocirc XL 65-130	104309	ecocirc XL B 65-130	104409LF	1	208-230	1	50/60	45 - 825	0.5 - 3.5	1100-3550
ecocirc XL 40-200	104312	ecocirc XL B 40-200	104412LF	1	208-230	1	50/60	50 - 825	0.5 - 3.5	1100-3550
ecocirc XL 70-145	104315	ecocirc XL B 70-145	104415LF	2	208-230	1	50/60	55 - 1400	0.6 - 6.0	900-3300
ecocirc XL 40-275	104318	ecocirc XL B 40-275	104418LF	2	208-230	1	50/60	50 - 1400	0.5 - 6.0	900-2900

Note: Where potable water is pumped, use a lead-free bronze booster. ecocirc XL pumps are recommended for indoor use only.

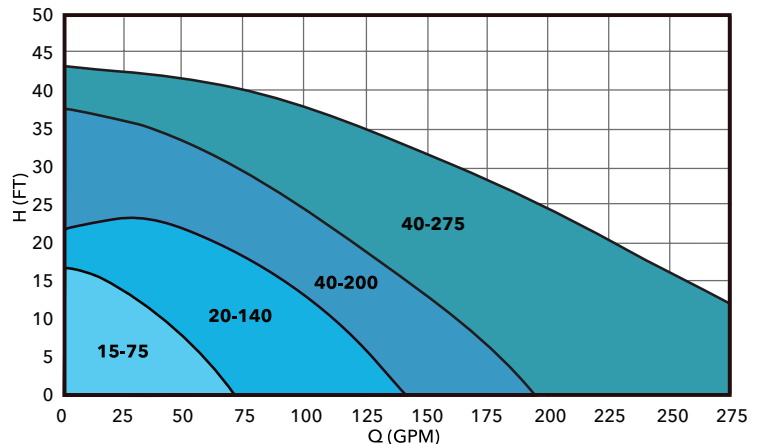
*CSA certified to NSF/ANSI 372 that product contains less than 0.25% lead content by weight on wetted surface.

** Nominal HP

ecocirc XL High Head Performance Range



ecocirc XL High Flow Performance Range



CIRCULATORS ecocirc® XL

High efficiency large wet rotor pump for heating, cooling and potable water systems

Self-flushing membrane
Allows clean water to cool and lubricate the motor bearing. Restricts entry of abrasive particles.

Economical operation
A highly efficient ECM motor combined with optimized pump hydraulics, keeps operational costs at a minimum.

Chilled water applications
Electronics are separated from the pump to prevent condensation for worry free operation even at 14°F (-10°C).

High visibility
Even in dark mechanical rooms, a bright display with large figures and symbols makes it easy to view pump status.

Keep it hot or cold
A closed, perfectly molded insulation shell preserves a constant temperature of the pumped liquid.

Sensorless technology
The ecocirc XL variable speed drive has the pump's hydraulic performance mapped in memory for multiple RPMs with corresponding electric current values (similar to the ITSC Sensorless VS Drive). The Delta P value associated with the pump's actual operating point is compared to the setpoint Delta P and the controller makes speed adjustments using current to minimize the differences between actual Delta P and setpoint Delta P.

Increase your control options
Multiple inputs including start-stop, temperature control, pressure regulation and advanced Modbus or BACnet control provide dynamic system management.

Product Range Chart

Model Number	Version		Power Supply		Flange Connection				Pump Body		Fluid Temp. Range	Ambient Temp. Range	Max. Pressure Range	Protection Class
	High Head	High Flow	Single Phase 115V	Single Phase 208-230V	Small Booster (2 Bolts)	Large Booster (2 Bolts)	2" Booster (4 Bolts)	3" Booster (4 Bolts)	Cast Iron	Lead-Free Bronze*	14°F - 230°F	32°F - 104°F	175 PSI	IP44
ecocirc XL 20-35	•		•		•				•	•	•	•	•	•
ecocirc XL 36-45	•		•	•	•				•	•	•	•	•	•
ecocirc XL 15-75		•	•	•			•		•	•	•	•	•	•
ecocirc XL 55-45	•			•	•				•	•	•	•	•	•
ecocirc XL 20-140		•		•			•		•	•	•	•	•	•
ecocirc XL 65-130	•			•		•			•	•	•	•	•	•
ecocirc XL 40-200		•		•			•		•	•	•	•	•	•
ecocirc XL 70-145	•			•		•			•	•	•	•	•	•
ecocirc XL 40-275		•		•			•		•	•	•	•	•	•

*CSA certified to NSF/ANSI 372 that product contains less than 0.25% lead content by weight on wetted surface.

- Small Booster (2 bolts) has a bolt hole to bolt hole dimension of 3-3/16".
- Large Booster (2 bolts) has a bolt hole to bolt hole dimension of 3-7/16".



Input Signals

- One 0-10V (Analog): Speed Control by external controller
- One 4-20mA (Analog): Connection with an external differential pressure sensor for the pressure control mode (two different pressure sensor range: 0-15 PSI PN: 104504 and 0-30 PSI PN: 104505)
- One external temperature sensor input for either Constant Temperature or Temperature Influenced modes. Sensor PN: 104502
- One built-in temperature sensor for either Constant Temperature or Temperature Influenced modes.

Remote Building Management System Capabilities


- The pump can be monitored or controlled by a signal from a 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 or an App can be used to program the advanced settings. Module PN: 104500

CIRCULATORS ecocirc® XL


High efficiency large wet rotor pump for heating, cooling and potable water systems

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 ($\Delta p-c$)

 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)

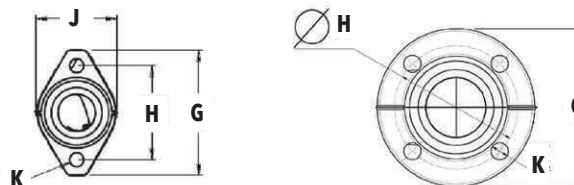
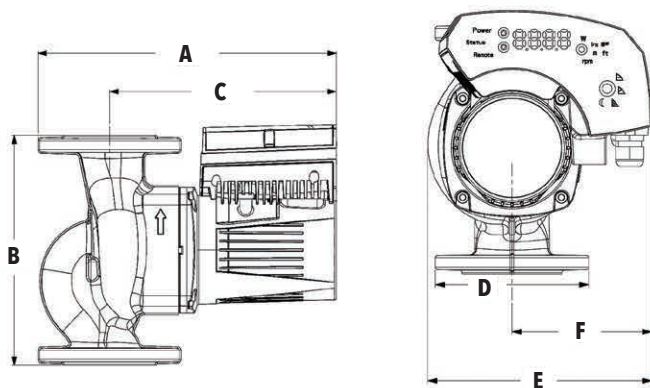
CONSTANT TEMPERATURE SPEED CONTROL

T-Constant Control

This control mode will use a PI algorithm to vary the speed of the pump in order to maintain a constant temperature of the fluid media.

ΔT -Constant Control

This control mode will use a PI algorithm to vary the speed of the pump in order to maintain a constant differential temperature between the built-in temperature sensor and external temperature sensor.



Model Number	Nominal Motor HP	Dimensions - Inches (mm)						Approx. Shipping Weight Lbs. (kg)	
		A	B	C	D	E	F	Cast Iron	Bronze
ecocirc XL 20-35	1/12	9.94 (252)	6.38 (162)	8.20 (208)	4.19 (106)	7.20 (183)	4.72 (120)	19.8 (9)	22 (10)
ecocirc XL 36-45	1/6	9.94 (252)	6.38 (162)	8.20 (208)	4.19 (106)	7.20 (183)	4.72 (120)	19.8 (9)	22 (10)
ecocirc XL 15-75	1/6	11.04 (280)	8.5 (216)	8.39 (213)	5.19 (132)	7.57 (192)	4.72 (120)	26.4 (12)	28.6 (13)
ecocirc XL 55-45	1/2	11.89 (302)	6.38 (162)	10.18 (258)	4.19 (106)	8.12 (206)	5.02 (127)	26.4 (12)	28.6 (13)
ecocirc XL 20-140	1/2	13.39 (340)	11.5 (292)	10.41 (264)	5.19 (132)	8.20 (208)	5.02 (127)	35.2 (16)	39.6 (18)
ecocirc XL 65-130	1	14.84 (377)	11.5 (292)	11.80 (299)	4.62 (117)	9.53 (242)	5.77 (146)	39.6 (18)	44 (20)
ecocirc XL 40-200	1	15.17 (385)	11.5 (292)	11.80 (299)	5.19 (132)	9.53 (242)	5.77 (146)	41.8 (19)	46.2 (21)
ecocirc XL 70-145	2	14.84 (377)	11.5 (292)	11.80 (299)	4.62 (117)	9.53 (242)	5.77 (146)	38.4 (17)	44 (20)
ecocirc XL 40-275	2	16.04 (407)	12.0 (305)	12.57 (319)	6.00 (152)	10.07 (256)	5.77 (146)	49.6 (23)	55 (25)

Model Number	Flange Size Inches - NPT	# of Bolts	Dimensions - Inches (mm)				B&G Companion Flange (Set of 2)	
			G	H	J	K	Cast Iron PN	Bronze PN
ecocirc XL 20-35	3/4, 1, 1-1/4, 1-1/2	2	4.19 (106)	3.16 (80)	2.62 (66)	0.47 (12)	101001 - 101004*	101011LF - 101014LF*
ecocirc XL 36-45	3/4, 1, 1-1/4, 1-1/2	2	4.19 (106)	3.16 (80)	2.62 (66)	0.47 (12)	101001 - 101004*	101011LF - 101014LF*
ecocirc XL 15-75	2	4	5.18 (132)	4.06 (103)	-	0.56 (14)	101215	10216LF
ecocirc XL 55-45	3/4, 1, 1-1/4, 1-1/2	2	4.19 (106)	3.16 (80)	2.62 (66)	0.47 (12)	101001 - 101004*	101011LF - 101014LF*
ecocirc XL 20-140	2	4	5.19 (132)	4.06 (103)	-	0.56 (14)	101215	10216LF
ecocirc XL 65-130	1, 1-1/4, 1-1/2	2	4.62 (117)	3.44 (87)	2.86 (73)	0.47 (12)	101005 - 101007*	101015LF - 101017LF*
ecocirc XL 40-200	2	4	5.19 (132)	4.06 (103)	4.06 (103)	0.56 (14)	101215	10216LF
ecocirc XL 70-145	1, 1-1/4, 1-1/2	2	4.62 (117)	3.44 (87)	2.86 (73)	0.47 (12)	101005 - 101007*	101015LF - 101017LF*
ecocirc XL 40-275	3	4	6.00 (152)	5.06 (129)	-	0.53 (13)	101217	10218LF

* Part numbers represent a Master Carton of 12 flanges with fasteners pack.
1-1/2" is the diameter of the suction and discharge for the 2-bolt models.