

JOB:	REPRESENTATIVE:	
UNIT TAG:	ORDER NO.	DATE:
ENGINEER:	SUBMITTED BY:	DATE:
CONTRACTOR:	APPROVED BY:	DATE:



# ecocirc<sup>®</sup> XL

## High Efficiency Large Wet Rotor Circulator with Electronically Commutated Motor (ECM)



### DESCRIPTION

The ecocirc<sup>®</sup> 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  
 Gasket/O-Ring: EPDM  
 All Other Wetted Parts: AISI 304 Stainless Steel  
 Motor Type: Electronically Commutated Permanent Magnet Motor  
 Insulation Class: F

### SPECIFICATIONS

MODEL NO. \_\_\_\_\_

FLOW \_\_\_\_\_ HEAD \_\_\_\_\_

HP \_\_\_\_\_ RPM \_\_\_\_\_

VOLTAGE \_\_\_\_\_ CYCLE \_\_\_\_\_ PHASE \_\_\_\_\_

SPECIALS \_\_\_\_\_

### 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)

### 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	0.5 - 6.0
ecocirc XL 65-130	104310	ecocirc XL N 65-130	104460LF	1	208-230/400-460	3	50/60	50 - 800	0.5 - 2.8/2.0
ecocirc XL 40-200	104313	ecocirc XL N 40-200	104463LF	1	208-230/400-460	3	50/60	50 - 800	0.5 - 2.8/2.0
ecocirc XL 95-160	104321	ecocirc XL N 95-160	104471LF	2	208-230/400-460	3	50/60	50 - 1250	0.5 - 4.4/2.0
ecocirc XL 27-320	104323	ecocirc XL N 27-320	104473LF	2	208-230/400-460	3	50/60	50 - 1500	0.5 - 4.4/3.0
ecocirc XL 110-180	104326	ecocirc XL N 110-180	104476LF	3	400-460	3	50/60	50 - 2000	0.5 - 3.7
ecocirc XL 45-375	104328	ecocirc XL N 45-375	104478LF	3	400-460	3	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

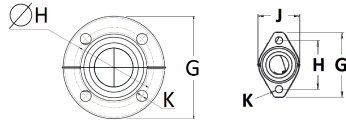
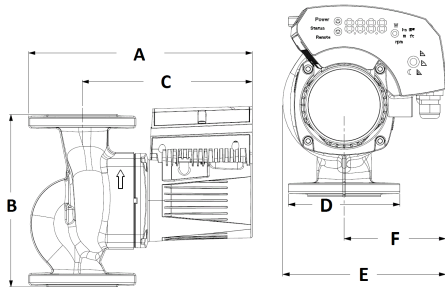
**DIMENSIONS AND WEIGHTS**

MODEL NO	Nominal Motor HP	DIMENSIONS - INCHES (mm)						APPROX. SHIPPING WEIGHT LBS. (KG)	
		A	B	C	D	E	F	Cast Iron	Stainless Steel
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 (17.4)	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 (22.5)	55 (25)
ecocirc XL 65-130	1	14.96 (380)	11.5 (292)	11.85 (301)	2.87 (73)	10.43 (265)	5.31 (135)	39.6 (18)	44 (20)
ecocirc XL 40-200	1	15.23 (387)	11.5 (292)	11.85 (301)	5.19 (132)	10.43 (265)	5.31 (135)	35.2 (16)	39.6 (18)
ecocirc XL 95-160	2	14.44 (367)	11.5 (292)	11.37 (289)	2.87 (73)	10.43 (265)	5.31 (135)	39.6 (18)	44 (20)
ecocirc XL 27-320	2	15.27 (388)	14.17 (360)	11.81 (300)	6.00 (152)	10.43 (265)	5.31 (135)	49.6 (22.5)	55 (25)
ecocirc XL 110-180	3	14.44 (367)	11.5 (292)	11.37 (289)	2.87 (73)	10.43 (265)	5.31 (135)	38.4 (17.4)	44 (20)
ecocirc XL 45-375	3	16.14 (410)	14.17 (360)	12.67 (321)	6.00 (152)	10.43 (265)	5.31 (135)	49.6 (22.5)	55 (25)

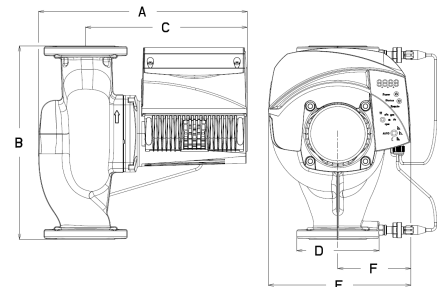
MODEL NO	FLANGE SIZE INCHES - NPT	# of Bolts	DIMENSIONS - INCHES (mm)				B&G COMPANION FLANGE (Set of 2)	
			G	H	J	K	CAST IRON PN	STAINLESS STEEL PN
ecocirc XL 20-35	3/4, 1, 1-1/4, 1-1/2	2	4.19 (106)	3.16 (80)	2.62 (66)	0.47 (12)	101201 - 101204	101208LF - 101211LF
ecocirc XL 36-45	3/4, 1, 1-1/4, 1-1/2	2	4.19 (106)	3.16 (80)	2.62 (66)	0.47 (12)	101201 - 101204	101208LF - 101211LF
ecocirc XL 15-75	2	4	5.18 (132)	4.06 (103)	-	0.56 (14)	101215	101216LF
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)	101201 - 101204	101208LF - 101211LF
ecocirc XL 20-140	2	4	5.19 (132)	4.06 (103)	-	0.56 (14)	101215	101216LF
ecocirc XL 65-130	1, 1-1/4, 1-1/2	2	4.62 (117)	3.44 (87)	2.86 (73)	0.47 (12)	101205 - 101207	101212LF - 101214LF
ecocirc XL 40-200	2	4	5.19 (132)	4.06 (103)	-	0.56 (14)	101217	101216LF
ecocirc XL 70-145	1, 1-1/4, 1-1/2	2	4.62 (117)	3.44 (87)	2.86 (73)	0.47 (12)	101205-101207	101212LF-101214LF
ecocirc XL 40-275	3	4	6.00 (152)	5.06 (129)	-	0.53 (13)	101217	101218LF
ecocirc XL 65-130	1, 1-1/4, 1-1/2	2	4.62 (117)	3.44 (87)	2.86 (73)	0.47 (12)	101205 - 101207	101212LF - 101214LF
ecocirc XL 40-200	2	4	5.19 (132)	4.06 (103)	-	0.56 (14)	101215	101216LF
ecocirc XL 95-160	1, 1-1/4, 1-1/2	2	4.62 (117)	3.44 (87)	2.86 (73)	0.47 (12)	101205 - 101207	101212LF - 101214LF
ecocirc XL 27-320	3	4	6.00 (152)	5.06 (129)	-	0.53 (13)	101217	101218LF
ecocirc XL 110-180	1, 1-1/4, 1-1/2	2	4.62 (117)	3.44 (87)	2.86 (73)	0.47 (12)	101205-101207	101212LF-101214LF
ecocirc XL 45-375	3	4	6.00 (152)	5.06 (129)	-	0.53 (13)	101217	101218LF

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

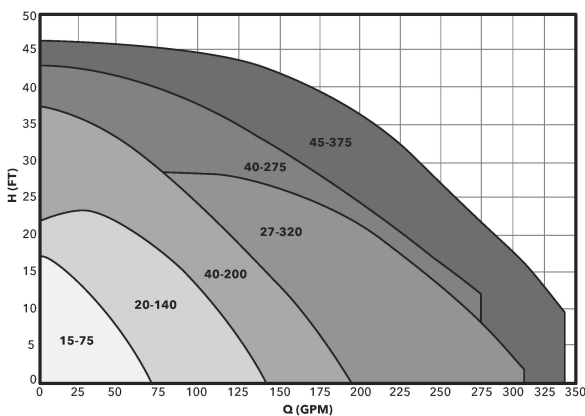
**SINGLE PHASE PUMP DIMENSIONS**



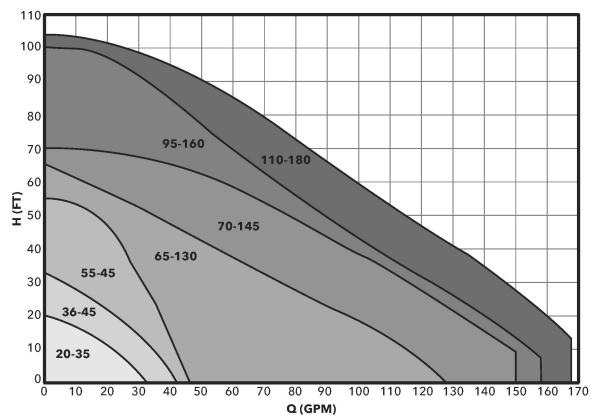
**THREE PHASE PUMP DIMENSIONS**



ecocirc XL High Flow Performance Range Curve



ecocirc XL High Head Performance Range Curve

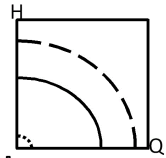


## SAFETY STANDARDS AND PROTECTION

- 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.

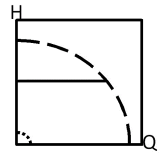
## STANDARD OPERATING MODES

### CONSTANT SPEED



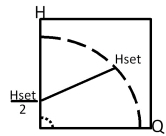
The pump maintains a constant speed at any flow rate. The desired speed is set on the interface panel of the pump.

### CONSTANT PRESSURE ( $\Delta p-c$ )



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)

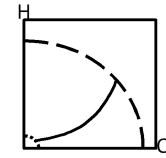
## INPUT SIGNALS

- 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.

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

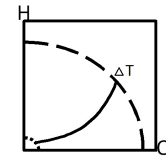
## TEMPERATURE DEPENDENT OPERATING MODES

### SET POINT TEMPERATURE ( $\Delta p-T$ )



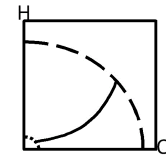
The nominal differential pressure set point is modified based on the fluid temperature. Uses the built-in temperature sensor.

### SET POINT TEMPERATURE (T)



The pump maintains a constant temperature in a system, such as 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.

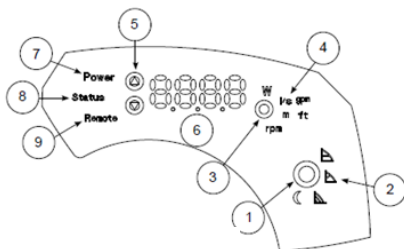
## REMOTE BUILDING MANAGEMENT SYSTEM CAPABILITIES

- 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

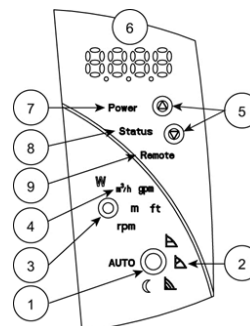
**OUTPUT RELAY(single phase):** Normally Open Dry Contact Relay for Fault Mode indication.

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

## ONBOARD USER INTERFACE



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



**xylem**  
Let's Solve Water

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