Bell & Gossett
a xylem brand

SUBMITTAL

A-170A

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

Lead Free, Energy Efficent e^3 SC Solar Circulators for Solar Thermal Systems

NSF Certified to NSF/ANSI 372

Description

The **eco**circ e^3 solar circulation can be used for solar circulation pump applications without connection to the power grid. Highly efficient, the **eco**circ solar pump can be connected directly to a photovoltaic panel and is characterized by its small size, extremely low power consumption and its Maximum Power Point (MPP) tracking software.

Materials of Construction

Pump Body: Lead Free* Brass
O-Ring: EPDM
Bearing: Carbon/Alumina Ceramic
Impeller: PPO
Motor: High Efficiency ECM
All Other Wetted Parts: Type 316 Stainless Steel
Shaft-less, seal-less construction

Operating Data

Pump
Maximum Working Pressure: 150 psi (10.3 Bar)
Maximum Working Temperature: 203°F (95°C)
Minimum Working temperature: 40°F (10°C)

Motor
ECM Spherical Motor
12 - 24V DC
1 - 22 Watts Power Consumption
Automatic Overload Protection
Low in-rush current

Standard Features

Motor
Designed with electronically commutated motor with shaft-less spherical permanent magnet rotor to improve efficiency.

Lead Free
All e^3 SC Solar circulators are made from lead free construction*

Body Types
UltraCirc: The UltraCirc comes with 1/2" union connections and has a built in air purge to remove unwanted air. The UltraCric also has a built in check and isolation valves for easy isolation and removal of motor housing.

Sweat: The e^3 circulators have the option of a 1/2" sweat connection.

Threaded: The e^3 circulators have the option of 1/2" Female NPT.

Automatic Performance optimization
The **eco**circ e^3 solar circulators make use of Maximum Power Point (MPP) tracking to actively optimize circulator performance based on the photovoltaic panel input.

Connections
1/2" FPT
1/2" Sweat Suction & Discharge
1/2" Union Connection

*As defined by CA AB1953

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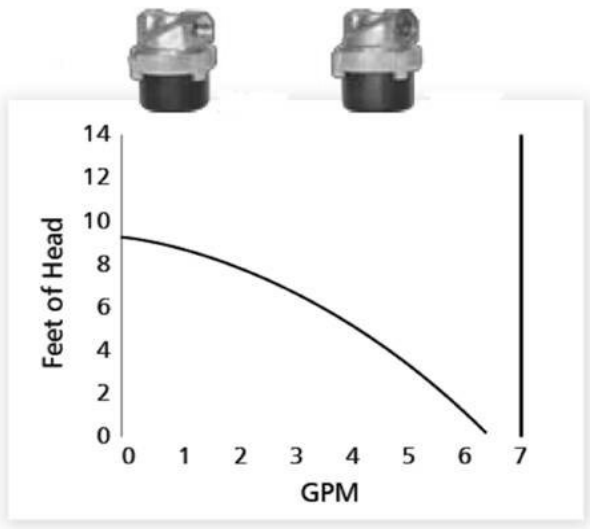
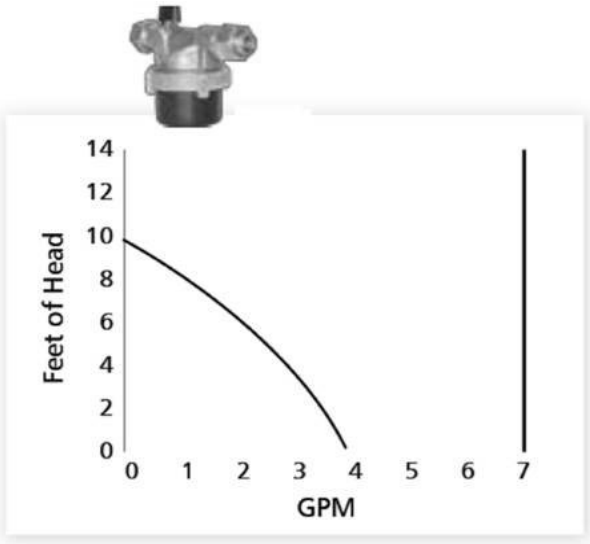
Typical Specifications

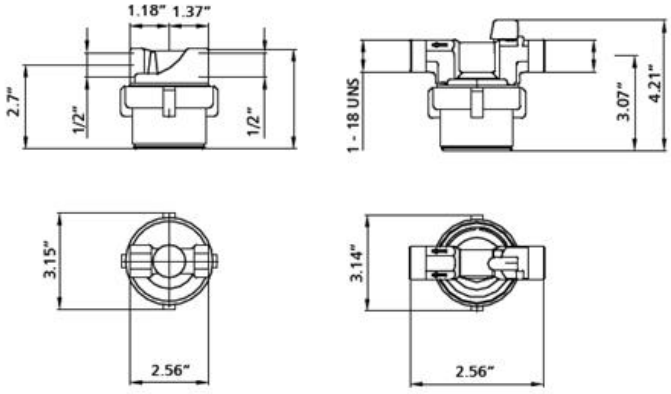
The contractor shall furnish and install in-line circulating pumps as illustrated on the plans and in accordance with the following specification:
1. The pumps shall be of the high efficiency type specifically designed for quiet operation
2. Pump to be suitable for 203°F (95°C) operation at 150 psig (10.3 Bar) working pressure
3. The pumps shall have a ceramic ball bearing lubricated by the system fluid.
4. Pump body shall be a lead-free (less than 0.25% Pb) brass
5. Motor shall be spherical permanent magnet electrically commutated motor (ECM)
6. Motor shall be non-overloading at any point on the pump curve and shall have built in overload prtection
7. Pumps to have a capacity of____GPM at _____foot of head
8. All pumps to be supplied by Bell & Gossett Model_____

e^3 SC-6S, 6N



e^3 SC-4U





Part Number	Model	Material	Connection	
			Size	Type
6055B2000	e^3 SC-6S	LEAD-FREE BRASS	1/2"	SWEAT
6055B2001	e^3 SC-6N	LEAD-FREE BRASS	1/2"	FNPT
6005B2002	e^3 SC-4U	LEAD-FREE BRASS	1/2"	UNION

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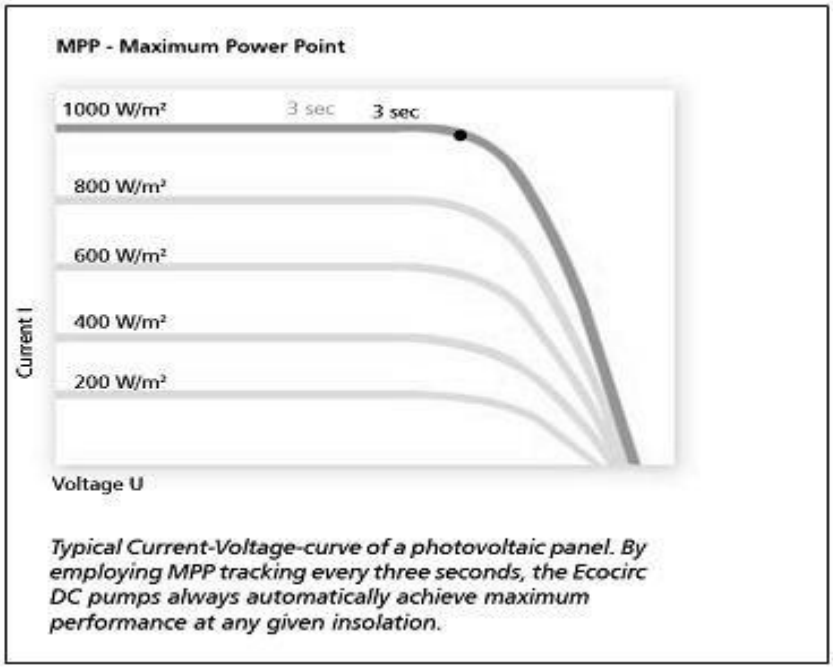
MPP - Maximum Power Point

The Bell & Gossett SC solar circulators are equipped with self-optimizing performance to maximize use of the available power from a solar photovoltaic (PV) panel. Every three (3) seconds the processor will modify its operating point on the voltage-current curve of the PV panel to find the point of maximum performance. This is called the "Maximum Power Point" (MPP). At this point, the pump achieves the maximum RPM and maximum performance for the given power input from the PV panel.



Typical Current-Voltage-curve of a photovoltaic panel. By employing MPP tracking every three seconds, the Ecocirc DC pumps always automatically achieve maximum performance at any given insolation.

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