

GENERAL SPECIFICATIONS



Models

SHALLOW-FLO S2S

DEEP-FLO S2S

RECYCLE-FLO S2S

General

Solar powered floating mixer/aerators operate from sunup-to-sundown (S2S) and are manufactured by LiquidTEK LLC of Wilton, ND with the following characteristics.

Turtle Dome Canopy

The turtle dome is designed from interlocking rotationally molded HDPE plastic sections. The solar panel frames are hinged at the top to the matching triangular roof of the canopy.

Steel Frame

The stainless-steel frame of 3" square tubing supports the turtle dome and the flotation and provides a platform for the motor and controls. The floats are secured to the frame with 1" square tubing in a turkey foot design. All steel and aluminum components are sandblasted, and powder coated after fabrication in custom designed jigs to ensure manufacturing consistency. All hardware is stainless steel (primarily 3/8") with brass lock nuts (dissimilar materials) to prevent galling or seizure.

Solar Panels

Three 24v 190-220-watt monocrystalline panels are used in series to ensure one panel is always facing the sun regardless of wind direction. Solar panels an industry standard warranty that provides 90% or greater efficiency after 25 years.

Intake Assembly

Shallow-Flo

The intake circulation system incorporates two 72" diameter rotomolded funnel shaped dishes. Dishes are set facing pond surface and pond bottom. The two funnels are connected by a 24' diameter x 12" high throat that incorporates 2 trash grates and a center hub. The center hub maintains the impeller shaft alignment.

Each dish incorporates a continuous French curve that terminates in a 1 1/2" horizontal lip at the outer edge. The edge of the lip is tapered to effect minimal turbulence in the water exiting the distribution dish. This non-turbulent flow is considered as laminar, as velocity is typically at or below 1' FPS.

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The circulation system is supported by 3 depth adjustable ACME threaded rods ensuring uniform water depth of 1" around the entire circumference.

The circulation system is housed in a sandblasted and powder coated frame that supports the unit on shore or on the bottom of the pond-should water levels be reduced below 3' depth.

Deep-Flo

In the Deep-Flo model, the lower half of the distribution dish is replaced with a 24" flexible hose connected to the bottom of the throat. The length of the hose is made up of 3 sections connected by additional throats. Each throat contains cutouts that allow water to be drawn into the hose at 3 distinct depths, ensuring uniform mixing and elimination of thermal or chemical stratification. The placement of the throats and hose length is determined by the pond depth and is coordinated with the owner/engineer.

Optional dissolved oxygen and temperature probes are available to be located at multiple levels with reporting via the control center.

Recycle-Flo

The water intake in the Recycle-Flo model consists of a submersible 60 volt brushless DC motor with a debris screen. The pump is suspended from the stainless steel frame with the intake 3' or 1 meter below the surface. The pump discharges thru a 1" diameter hose to a floating fountain or shore discharge. The distance of the hose and spray pattern is based upon site conditions and desired objectives.

Impeller Assembly

The Shallow-Flo and Deep-Flo units utilize the same impeller and shaft assembly. The impeller is located approximately 8" below the surface. The glass filled nylon impeller has two overlapping blades and creates a high efficiency pump at low RPM. The material and injection molded design allows for a precisely fabricated assembly and power curve. The impeller is secured to a 3" diameter hub and stainless-steel shaft. The shaft includes an ice collar that helps maintain rotation at temperatures as low as -40°F.

Motor

The Shallow-Flo and Deep-Flo units utilize a 24-volt DC fractional motor and gearbox. The motor operates every day, (sunup-to-sundown) at 40-120 RPM.

Control Panel

The Control Panel is programmed to manage motor operations between sunup & sundown and to safely stop and reverse the impeller if jam conditions occur.

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Smart Solar Module

The Smart Solar Module adds cellular communication capability to the S2S control center. Records and communicates motor RPM and sensor probe data that reports on water quality. This data is uploaded to the cloud for custom reporting to owner/operators.

Instrumentation

Optional instrumentation.

Dissolved Oxygen and Temperature probe (DO)

Determines the concentration of oxygen and temperature in aqueous solutions in the field.

Anchoring

The manufacturer shall supply the following optional anchoring kit upon customer request:

500' of 3/16" diameter stainless steel mooring cables

8 - SS cable thimbles and 8 - SS cable clamps.

Warranty

A warranty statement shall be provided that defines the terms of a 36-month warranty

Safety

Units shall have all necessary warning labels inside the units detailing safe operating and hazard warnings.

Installation

All mixer/aerators shall be designed and shipped so they can be assembled and installed without assistance from the manufacturer.

The manufacturer shall provide a factory representative for startup and to certify units are operating within specifications.

Manufacturer to provide Operating and Maintenance Manuals and operator training.