



Installation/Owners Manual

SOLVELOX Drainback System

S-SV-DB100

S-SV-DB100P32

S-SV-DB100P64

S-SV-DBP32

S-SV-DBET30

S-SV-DBET60

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INTRODUCTION

System Overview

A solar thermal drainback system can provide 70-90% of your domestic hot water needs annually. Water is heated by the sun by running through a solar collector. The heat is then transferred to the potable water in your hot water tank. Water is circulated through each “loop” by a high efficiency circulation pump through a brazed plate heat exchanger. The collector loop contains distilled water and air so that when the pumps are not running, the water in the loops falls into the drainback tank leaving the collectors and the pipes which are exposed to freezing temperatures empty and safe from freeze damage. The pumps are controlled by a differential control which reads the temperatures at the collector and in the tank. It provides power to the pumps when the temperature in the collectors is 14° higher than the tank water.

SolVelox Drainback Advantage

SOLARHOT has uniquely created the SolVelox package which pre-assembles and integrates an oversized stainless steel heat exchanger along with the pumps and valves necessary to drive a two-loop solar system. The heat exchanger and pumps are sized to meet the heat output of up to 6 solar flat panel solar collectors so one SolVelox appliance provides an economical solution as you scale the solar system to meet your particular needs. Also, the SolVelox is externally mounted in order to reduce maintenance issues.

Safety

The best performance will come from a solar collector with aluminum sides and low iron solar glass well sealed to hold the heat. These materials weigh 80-150 lbs depending on the size of the collector. Use extreme caution when mounting collectors on a roof or when connecting any wiring or electrical hookups.

- ALWAYS use fall protection
- Secure all ladders on level ground
- Locate all possible hazards, overhead wires, loose shingles etc
- Make sure power is turned off before adding water to the system
- NEVER hookup power to the water heater or storage tank until it has been filled.
- Use a tempering valve or mixing valve to prevent scalding
- Consult proper authorities and check with your local building inspector for permit requirements and local building codes before project commencement. System must meet local code requirements for penetrating structural members and fire-rate assemblies.



Certification

The solar energy system described by this manual, when properly installed and maintained, meets the minimum standards established by the SRCC. this certification does not imply endorsement or warranty of this product by SRCC.

Materials List

SolVelox includes:

- 1 SolVelox
- 1 SolVelox bracket
- 4 Screws for mounting the SolVelox
- 1 Differential Control
- 3 Screws for mounting the control
- 2 Sensors
- Strain reliefs for sensors
- 50 ft Sensor Wire



You will also need:

- electric water heater
- drainback tank with sight glass
- SRCC certified collectors
- mounting hardware
- 3/4" copper pipes
- 1" elastomeric insulation eg. Nomaco K-Flex LS
- PVC insulation jacketing eg Speedline Smoke Free PVC
- vinyl tape
- 1 - 3/4" coolie hat roof flashing
- 1 - 3/4" coolie hat roof flashing with gooseneck
- 2 - 1' unions
- 2 - 1" caps
- 2 - 1" to 3/4" elbows
- 9 gallons of distilled water
- Watts 70A tempering valve
- 2 - 24" M x F flexible stainless steel pipes
- Flow Meter (must allow backflow)

Installation

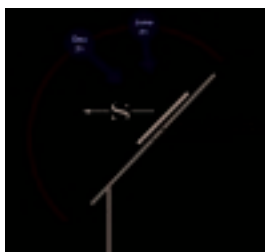
Sizing the Collectors

Sizing the collector area: The maximum energy you can get out of the system is controlled by a few things and the square footage of collectors on the roof (or in the yard) is one of them. The more square footage of collectors you have the more potential you have for collecting solar energy. If you live in the southern half of the country, the rule of thumb says you need 20 sq. ft. of collector area for the first two people in the household and 8 sq. ft. of collector area for each person after the first two. If the home is in the northern U.S. you would want to install 20 sq. ft. of collector area for the first two people and 14 sq. ft. per person for additional people.

This rule of thumb doesn't take into consideration the quality of the solar collector that you use. It is possible to have a solar collector that produces 2/3rd of the energy because the absorber is painted black –vs.- using a selective coating or because it uses lower quality glass that doesn't allow as much light to pass through. The rule of thumb that I just mentioned is appropriate for high quality solar collectors. I am defining a high quality solar collector as having either black chrome plated absorber or having some form of selective surface. Also, the glazing (glass) on the collector needs to be high transmission tempered glass. Avoid plastic glazed collectors since the clarity of the plastic will degrade quickly over time and ruin the value of your investment.

For more precise calculations based on weather data and collector information there are software packages available such as RETScreen available on the internet. <http://www.retscreen.net>

Collector Orientation



The collectors should be mounted as close to due south as reasonable considering the roof line, however, if the collector is mounted within 55 degrees of south any performance drop is insignificant. The aesthetics of flush mounting a collector on the roof will generally outweigh performance improvements less than 5%.

The collectors should ideally be inclined at the same angle as the latitude, i.e. if you are located in Raleigh, NC (latitude 38 degrees) you would ideally have the collectors inclined 38° from horizontal. Testing has shown that mounting a collector within $\pm 15^\circ$ of the site's latitude will lead

to no significant degradation in the collector's performance.

Pay close attention to the angle and direction of the roofline. If your roofline doesn't match the ideal criteria listed above, we recommend adding collector area as opposed to tilt mounting the collector. For example: If your roof faces the southeast, you may use three collectors instead of the two collectors which would be typical for a family of 4.

Further, minimize the shade over the collectors. Collector should receive 6-8 hours of direct sunlight each day for optimal performance.

In a drainback system, collectors should also slope 1/4" per foot towards the inlet to allow them to completely empty when pumps shut off.

Flush Mount Installation

Locate a Rafter

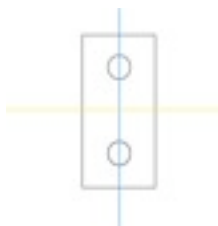
Here are a couple of ideas for how to locate a rafter:

- From inside the attic, drill an angled hole from the intersection of the roof deck and the rafter at a 45° angle into the roof deck from the intersection. When the drill first penetrates the roof should be approximately the center of the rafter.
- From the attic measure the distance from an existing roof protrusion to the nearest rafter. Use that same measurement on the outside of the roof
- Drill from the outside of the roof. Measure from the attic side of the hole to the nearest rafter. Use the same dimensions of the outside.
- Using a 3/16" X 12" long drill bit, drill from the inside of the house through the rafter to the outside.

Installing the Mounting Brackets

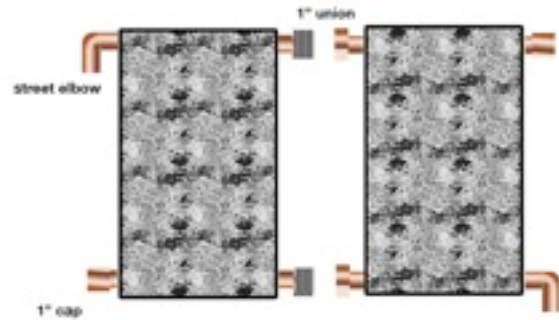


- Mark a 10 foot long horizontal line at least 10" below the peak of the roof.
- Measure 97 1/2" down from the first horizontal line and mark another 10' line.
- Locate the center of a rafter and mark vertically along the rafter with a chalk line between the two horizontal lines.
- Using the rafter spacing make vertical marks over the center of the rafters marking all the rafters that the collectors will span.
- Using the mounting foot as a template, hold the mounting foot at the center of each intersection. Holding the foot at the intersection of the chalk lines, mark the holes with a marker. Repeat this procedure until each of the mounting foot locations have been marked. (4 mounting feet for each collector)
- With a 3/16" drill, Drill a pilot hole at each one of the marks you just made.
- Fill each pilot hole with roofing caulk using a caulk gun.
- Apply roofing tar to the underside of each mounting foot.
- Place the mounting feet over the pilot holes. Screw the brackets to the rafters using 3/8" x 3" stainless steel lag screws, flat washers and lock washers.



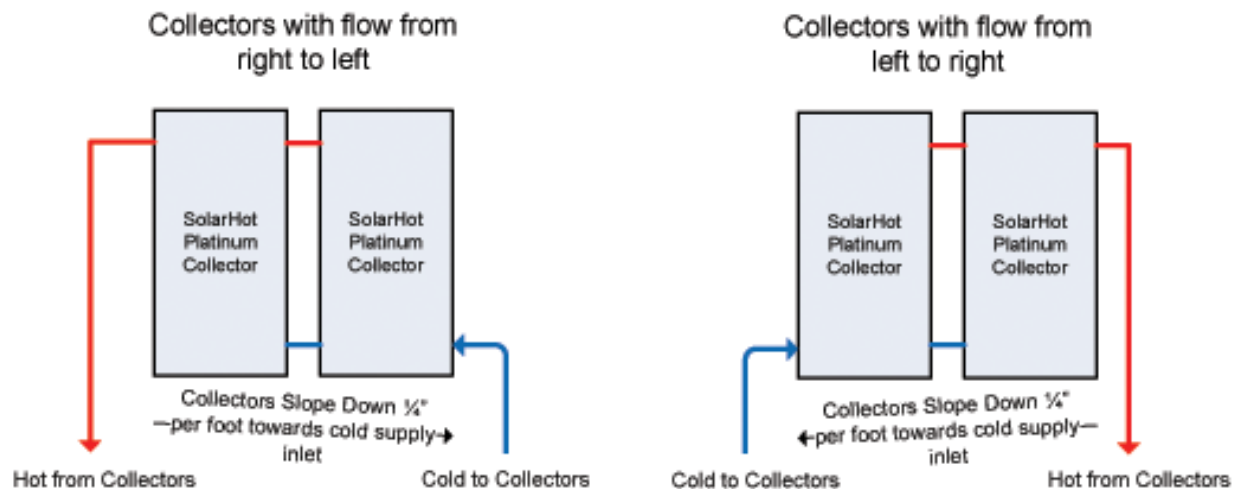
Preparing the Collectors

While still on the ground, you should solder on the 1 in couplings that will join the collectors. The end with the SOLARHOT id plate should be closest to the roofline as there are weep holes to release condensation on the other side. Be careful of the orientation when you solder on the couplings so that they will join together when the collectors are mounted side by side. The two open ends of the collectors will have street elbows soldered to the inlet and outlet of the collectors and 1" caps onto the 2 other corners.



Mounting the Collectors

- Build scaffolding, nail two by fours to stand on and wear fall protection.
- Mount the collectors so that there is a 1/4 inch drop per foot towards the inlet. This allows the collectors to drain completely when the system pumps turn off. All pipe runs to and from the collector should have at least a 10° slope unless rigid and well supported copper pipes are used in which case the slope can be 1/4 inch per foot.

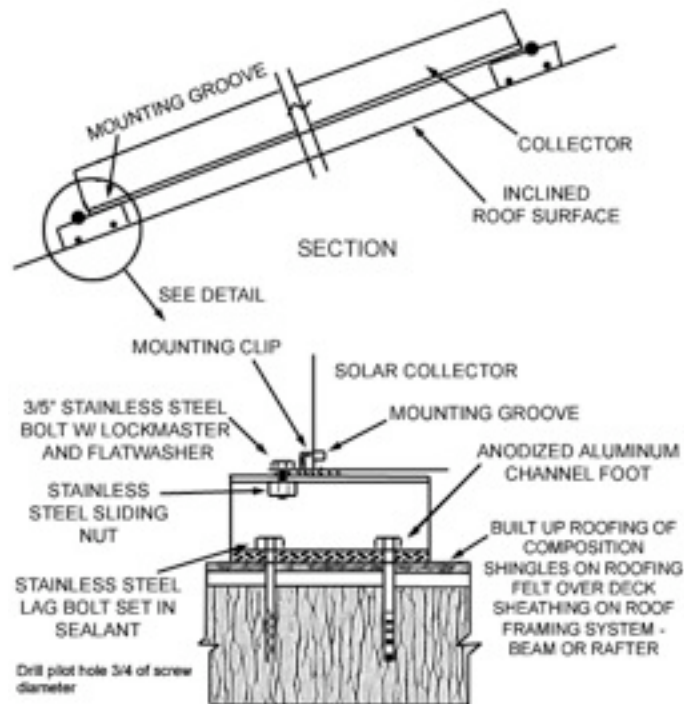


SOLARHOT

Collectors each have their own mounting systems but many of them are similar. The following mounting system works for SOLARHOT and many other collectors brands:

- The mounting clip is made up of two parts joined by a stainless steel bolt with lock washer. Before taking the collectors up to the roof, slide the stainless steel sliding nut into the anodized aluminum channel foot. Now carefully place the first collector so that the mounting clip fits in the mounting groove that runs around the bottom edge of the collector and tighten the bolt. NOTE: Each collector uses different clips, ensure that you have the correct mounting clips for your collector.
- Mount the next collector so that the unions join to the first collector and secure the mounting clips.
- Wrap male union threads with plumbing tape, connect and tighten the union couplings.

Flush Mount:



Connect to Pipes



- Using a wood bit the same size as your pipes, drill a hole in the center of a shingle below where the bottom corner of the collector inlet will be and in the opposite corner where the collector outlet will be.
- Apply sealant to the underside of the copper flashing. Carefully raise the drilled shingle, place flashing underneath and insert collar through the hole.
- Run pipes from attic through the coolie hat and sweat connect them to the street elbows. Remember that the pipes must always slope at least 10° from horizontal to allow the collectors and pipes to completely drain into the drainback tank (All pipe runs to and from the collector should have at least a 10°

slope unless rigid and well supported copper pipes are used in which case the slope can be 1/4 inch per foot).

- Strap the PT1000 probe sensor to the copper pipe at the collector outlet using a stainless steel screw clamp. Feed the sensor wire through the gooseneck of the coolie hat. The coolie hat can then be soldered to seal it from leaks. All the copper from the coolie hat to the collector needs to be covered with insulation and UV jacketing. The sensor must be isolated from exterior conditions.

Plumbing

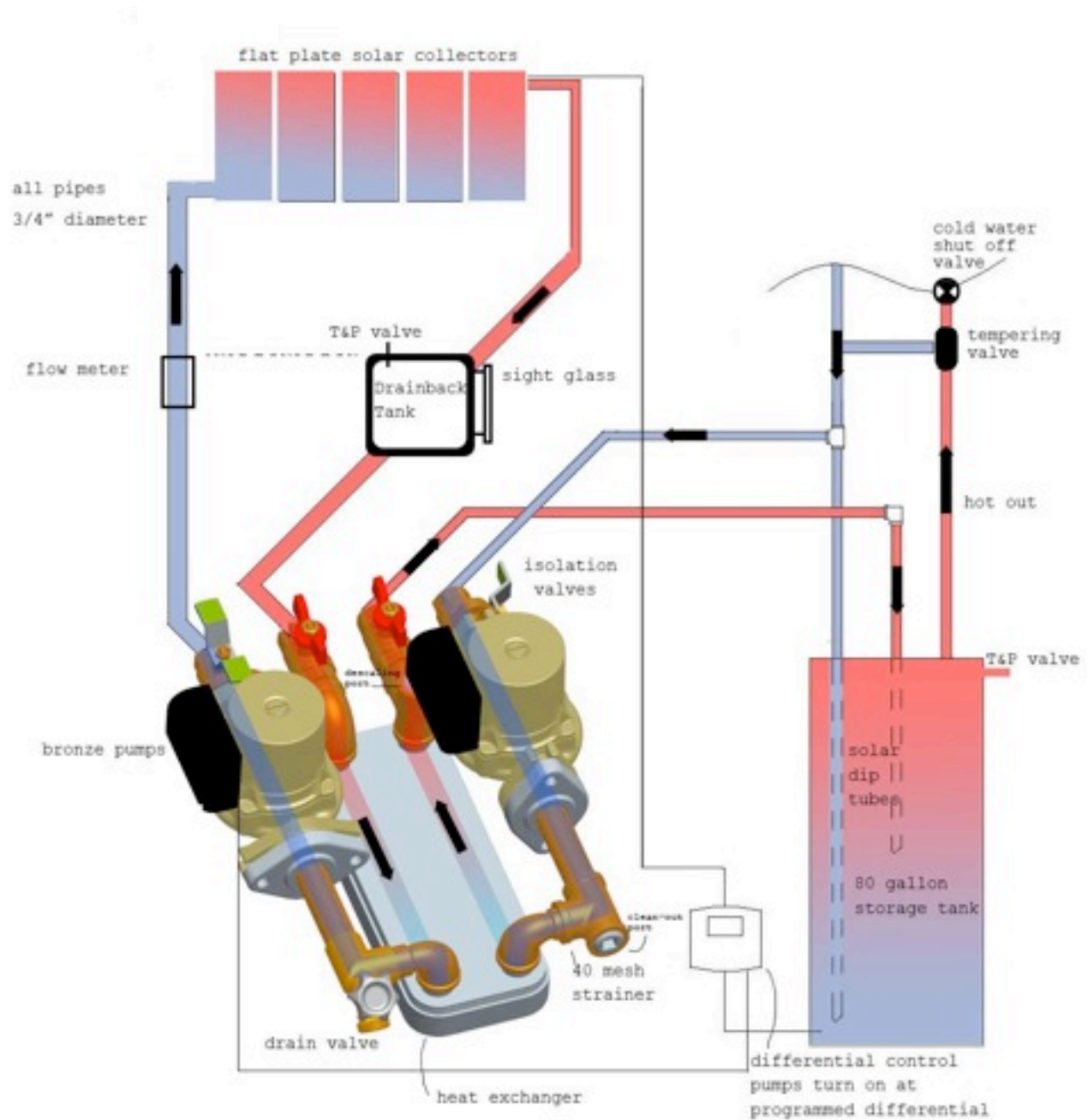
All pipe runs must have at least a 10° slope in a drainback system to allow the collectors to drain out completely (All pipe runs to and from the collector should have at least a 10° slope unless rigid and well supported copper pipes are used in which case the slope can be 1/4 inch per foot). Use 3/4" copper pipes on the collector loop. All pipes should be wrapped with at least 3/4" thick insulation. We recommend 1" Elastomeric insulation. Outdoor pipes should also be jacketed with UV protection material or some other means to protect it from moisture and ultraviolet deterioration. We recommend Nomaco K-Flex LS with Speedline Smoke Safe PVC Fitting Covers and vinyl tape.

All pipes must be well supported or they will sag. Sagging pipes may trap water and freeze, causing pipes to burst. Hanger should spread the load so that the insulation is not compressed. Place supports every 4.7 feet.

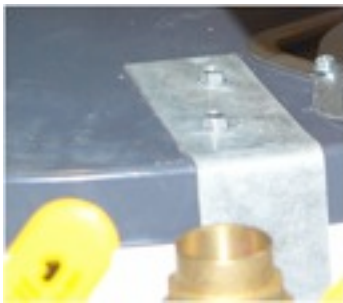
The drainback tank must be oriented so that the inlet and outlet ports are horizontal. Position the pressure relief valve on the top of the tank and place the brass plug in the port on the side. SOLARHOT stainless steel 10 gallon drainback tanks include a sight glass. If using another drainback tank use copper tees to install a sight glass such as the Conbraco 20-100: Standard Pattern Bronze Water Gauges for checking fluid levels or you can install a flow meter on the same level as the drainback tank on the collector feed side of the loop. Note: A flow meter in a drainback system must allow backflow. The Letro LDF360B is a .5 - 5 gpm flow meter suitable for 40 to 128 sq ft of collector area.

Please note that if the water storage tanks are located in or above living spaces a drip pan with a drain line to the outside of the building is required.

Refer to the following diagram for the relative location of the pipes, collectors and SolVelox. Positioning the drainback tank higher in the system is preferable. But it must be located where it is not in any danger of freezing. The cold water supply line to the solar storage tank must be covered with a minimum of 7/8" x 1/2" insulation for 5 feet from the water heater.



Mounting SolVelox onto the Tank



- Confirm that the P&T valve is on the side of the tank. If it is on the top of the tank, unscrew it and place it in the port on the side of the tank.
- Use needle nose pliers to remove the heat trap from the hot side of the tank and set aside.
- Feed the solar dip tube into the tank, closed end down, until it seats below the threads of the tank top fitting.
- Lay the tank down on the ground on top of cardboard or towels.
- Remove the white paper backing and stick the solid piece of Elastomeric insulation included in the SolVelox package to the back of the heat exchanger..
- Place the bracket over the SolVelox and place the assembly on the side of the tank. The side of the SolVelox should be 1 inch to the left of the top electrode cover. The bracket should lie flat on the top of the tank. Scribe the tank to match the bracket location.
- Using two #10 - 16 x 3/4" self drilling screws, screw the top of the bracket to the top of the hot water tank. Ensure that the vertical section of the bracket above the heat exchanger is flush with the side of the tank before you drive in the screws.
- While holding the bracket and the SolVelox firmly against the tank, drive two #10-16 x 3/4" self drilling screws into the lower section of the bracket just below the heat exchanger. It is critical that you hold the bracket and SolVelox firmly against the tank at this point otherwise it will be loose when you stand the tank upright. Seek assistance to make sure you get the product snug on the tank.
- Connect a 3/4" brass tee to the cold water inlet to the tank.
- Using 3/4" copper pipe and fittings or 3/4" MxF flexible stainless steel pipe, join the top right ball valve on the SolVelox assembly with the Tee connected to the cold inlet. This is the cold water input to the SolVelox.
- Using 3/4" pipe and fittings or 3/4" MxF flexible stainless steel pipe, connect the hot water inlet (where you perviously installed the solar dip tube) to the second ball valve from the right on the SolVelox. This is the hot water return to storage.
- The differential control is in the cover of the SolVelox. The SolVelox comes with 50 ft of 18 gauge sensor wire, if you require more wire than that, use UV stable (black) 18 gauge sensor wire. Place a sensor against the lower part of the interior tank by removing the lower access panel. While the panel is open, lower the bottom heating element to it lowest set point.
- Connect the collector return to the SolVelox via the second ball valve from the left.
- Remove the white backing from the insulation provided and insulate the heat exchanger.
- Set upper element to a minimum of 120° for back up heat.

Check Collector Loop for Leaks

- Open all shut off valves on collector loop before system has been filled with distilled water.
- Attach a female to male adapter to the drain valve on the bottom left of the SolVelox.
- Open drain valve and attach gas test block with pressure gauge.
- Apply 60 psi pressure for 15 minutes. Any drop in pressure during that time indicates a leak.

Start Up the System

- Confirm that all shut off valves are fully open.
- Remove pressure relief valve from the top of the drainback tank and fill the system with distilled water. You will need about 8-9 gallons of distilled water. Add water until sight glass is completely full.
- Replace pressure relief valve
- Turn on system and let it run for 5 minutes.
- Adjust upper element of the water heat to 120° F for back up heat.
- Set the high limit on the control to no more than 185° F

Check System Operation

- Add 3rd Steca sensor to the control
- Strap the sensor to the pipe returning to the tank as far from the tank as possible using a stainless steel screw clamp. (2nd from right)
- Insulate over the sensor.
- Let the system run for 15 minutes on a sunny day preferable around noon. 3 temperatures will show on the control. The collector outlet temperature, the bottom of the tank temperature and temperature of the water returning to the tank. Typically you should see the temperature at the bottom of the tank vary from 60 -80° F (city water temperature) to 185° (high limit set on the control) The water at the top of the tank will be typically higher than the water at the bottom but should not exceed the high limit set on the control. The Temperature and Pressure Relief Valve is set to 210° F.
- The system will automatically turn on the pumps when the collector temperature is 16° higher than the water at the bottom of the tank. It will then shut off the system when the temperature differential is 6° F. Collector temperatures may rise well above 200° F but the system will not run beyond the high limit set on the control.
- A system correctly installed will show the water returning to the tank to be at least a 3-10° F warmer than the water at the bottom of the tank.

Operations

Your SolVelox Drainback system is automated by the Steca control located on the face of the cover. Please refer to the Steca manual for system operation or adjustments.

Vacation and Emergency Shut Off

If the system is not to be used for any extended period of time, the system should be turned off at the differential control. Set the switch on the left side of the Steca control to the OFF position. To resume operations, set the switch to AUTO.

If there is a leak or other issue requiring the collector loop to be drained, turn the system off by setting the switch on the left side of the Steca control to the OFF position. Attach a hose to the drain valve on the lower left of the SolVelox. Open the drain valve. Exercise extreme caution as the water may be dangerously hot.

Maintenance

Your solar water system requires very little by way of maintenance but a few regular system checks can extend the life of your system well beyond 20 years.

Freeze Protection

This system is designed to protect itself from freeze damage to temperatures as low as -21°F as long as the drainback tank remains above 32°F. Freeze tolerance limits are based upon an assumed set of environmental conditions. In the event of extreme or prolonged cold weather, protect your system by shutting down the system and draining the collector loop as described in the section "Vacation and Emergency Shut Off".

Clear sediment from 40 mesh strainer

- Turn off your solar water system with the switch on the side of the Steca differential control and disconnect the power to the SolVelox by unplugging it from your Steca Differential Control.
- Close the 2 ports on the right side of the SolVelox.
- Open the clean out port. Be careful, water in the port may be very hot.
- Remove any sediment build up from the clean out port.
- Close and tighten clean out port
- Return shut off flanges to the open position and reconnect the power to the SolVelox

Descaling the heat exchanger

- Turn off your solar water system with the switch on the side of the Steca differential control and disconnect the power to the SolVelox by unplugging it from your Steca Differential Control.
- Close the 2 shut off on the right side of the SolVelox.
- Remove the pump casing by removing the four screws at the base of the pump. Set the pump and casing to one side. Do not allow contaminants to enter the pump casing.
- Open the descaling port and the clean out port. Be careful, water in the port may be very hot.
- Remove any sediment build up from the clean out port.
- Flush the heat exchanger with a weak solution of white vinegar and water.
- Close and tighten descaling and clean out port
- Replace pump and casing
- Return shut off flanges to the open position and reconnect the power to the SolVelox

Add Distilled Water or Change Heat Transfer Fluid

Your system will perform best when you have the maximum amount of heat transfer fluid in the collector loop. Check fluid levels annually and add distilled water until the sight glass is completely full. You can check the water level in the drainback tank with a sight glass or you can install a flow meter on the same level as the drainback tank on the collector feed side of the loop. Note: A flow meter in a drainback system must allow backflow. The Letro LDF360B is a .5 - 5 gpm flow meter suitable for 40 to 128 sq ft of collector area.

There must be enough air in the system so that the collectors and exposed pipes are empty when the system is not running.

Pumps

The circulation pumps have a life expectancy of 5-10 years. If a pump should require servicing or replacement:

- Turn off the system at the control
- Close all the ball valves at the top of the SolVelox. Leave the system off for several hours until the pumps are completely cooled to room temperature.
- Pumps are flanged so they can be easily removed by loosening the flange's nuts and bolts.

Parts List:

SOLARHOT SolVelox Glycol ET
S-SV-GET30-120 or S-SV-GET60-120

Congratulations on the installation of your SOLARHOT SOLVELOX System. Correctly installed and maintained, you system should provide you with many years of uninterrupted solar hot water. The solar collectors are designed to last 25-35 years, electric water heaters 10-20, pumps, controls and valves 5-10. Local water quality and usage will greatly affect life expectancies.

Solar Collector: S-SV-G-ET30-120 - single Apricus AP-30
S-SV-GET60-120 - two Apricus AP-30

Solar Storage Tank (120gal): Rheem 81VR-120TC-1
Lochinvar FTA120K

Pumps:	Armstrong	Wilo	Taco
Collector Loop Glycol	Astro 30B	Star 16B	006B
Collector Loop Drainback	Astro 70B	Star 32B	009B
Tank Loop	Astro 20B	Star 5B	003B

Controller: Steca Differential Control TR 0301U, requires PT1000 probe or lug replacement sensors

Heat Exchanger: SOLARHOT P-HX-210512

System operating parameters:

- Pressure on a glycol system should be between 25-30 psi
- Flow meter should read about 5 gpm on the collector loop and 3.5 on the tank loop

SOLARHOT

SOLARHOT SolVelox Glycol ET
S-SV-G-ET30 or S-SV-G100ET

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Solar Collector: S-SV-GET30 - single Apricus AP-30
S-SV-G100ET - two Apricus AP-30

Solar Storage Tank(80gal): Whirlpool EE3Z80HD055V
American Premier E62-80H-045DV
Rheem 81VR80TC-1
Lochinvar FTA082K

Pumps:	Armstrong	Wilo	Taco
Collector Loop Glycol	Astro 30B	Star 16B	006B
Collector Loop Drainback	Astro 70B	Star 32B	009B
Tank Loop	Astro 20B	Star 5B	003B

Controller: Steca Differential Control TR 0301U, requires PT1000 probe or lug replacement sensors

Heat Exchanger: SOLARHOT P-HX-210512

System operating parameters:

- Pressure on a glycol system should be between 25-30 psi
- Flow meter should read about 5 gpm on the collector loop and 3.5 on the tank loop

SOLARHOT

SOLARHOT SolVeloX Glycol
S-SV-G100P64

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Solar Collector: S-SV-G100P64 SOLARHOT S-SC-126P32

Solar Storage Tank: Whirlpool EE3Z80HD055V

American Premier E62-80H-045DV

Rheem 81VR80TC-1

Lochinvar FTA082K

Pumps:	Armstrong	Wilo	Taco
Collector Loop Glycol	Astro 30B	Star 16B	006B
Collector Loop Drainback	Astro 70B	Star 32B	009B
Tank Loop	Astro 20B	Star 5B	003B

Controller: Steca Differential Control TR 0301U, requires PT1000 probe or lug replacement sensors

Heat Exchanger: SOLARHOT P-HX-210512

System operating parameters:

- Pressure on a glycol system should be between 25-30 psi
- Flow meter should read about 5 gpm on the collector loop and 3.5 on the tank loop

SOLARHOT

SOLARHOT SOLVELOX DB

S-SV-DB100P32 and S-SV-DB100P64

Congratulations on the installation of your SOLARHOT SOLVELOX System. Correctly installed and maintained, your system should provide you with many years of uninterrupted solar hot water. The solar collectors are designed to last 25-35 years, electric water heaters 10-20, pumps, controls and valves 5-10. Local water quality and usage will greatly affect life expectancies.

Solar Collector: S-SV-DB100P32 - single SOLARHOT S-SC-126P32
 S-SV-DB100P64 - two SOLARHOT S-SC-126P32

Solar Storage Tank (80gal): Whirlpool EE3Z80HD055V
 American Premier E62-80H-045DV
 Rheem 81VR80TC-1
 Lochinvar FTA082K

Pumps:	Armstrong	Wilo	Taco
Collector Loop Glycol	Astro 30B	Star 16B	006B
Collector Loop Drainback	Astro 70B	Star 32B	009B
Tank Loop	Astro 20B	Star 5B	003B

Controller: Steca Differential Control TR 0301U, requires PT1000 probe or lug replacement sensors

Heat Exchanger: SOLARHOT P-HX-210512

System operating parameters:

- Pressure on a glycol system should be between 25-30 psi
- Flow meter should read about 5 gpm on the collector loop and 3.5 on the tank loop

SOLARHOT

SOLARHOT SOLVELOX DB

S-SV-DBET30 and S-SV-DBET60

Congratulations on the installation of your SOLARHOT SOLVELOX System. Correctly installed and maintained, your system should provide you with many years of uninterrupted solar hot water. The solar collectors are designed to last 25-35 years, electric water heaters 10-20, pumps, controls and valves 5-10. Local water quality and usage will greatly affect life expectancies.

Solar Collector: S-SV-DBET30 - single Apricus AP 30
 S-SV-DBET60 - two Apricus AP60

Solar Storage Tank (80gal): Whirlpool EE3Z80HD055V
 American Premier E62-80H-045DV
 Rheem 81VR80TC-1
 Lochinvar FTA082K

Pumps:	Armstrong	Wilo	Taco
Collector Loop Glycol	Astro 30B	Star 16B	006B
Collector Loop Drainback	Astro 70B	Star 32B	009B
Tank Loop	Astro 20B	Star 5B	003B

Controller: Steca Differential Control TR 0301U, requires PT1000 probe or lug replacement sensors

Heat Exchanger: SOLARHOT P-HX-210512

System operating parameters:

- Pressure on a glycol system should be between 25-30 psi
- Flow meter should read about 5 gpm on the collector loop and 3.5 on the tank loop

SOLARHOT

SOLARHOT SolVelox Drainback ET
S-SV-DBET30-120 or S-SV-DBET60-120

Congratulations on the installation of your SOLARHOT SOLVELOX System. Correctly installed and maintained, you system should provide you with many years of uninterrupted solar hot water. The solar collectors are designed to last 25-35 years, electric water heaters 10-20, pumps, controls and valves 5-10. Local water quality and usage will greatly affect life expectancies.

Solar Collector: S-SV-G-ET30-120 - single Apricus AP-30
 S-SV-GET60-120 - two Apricus AP-30

Solar Storage Tank (120gal): Rheem 81VR-120TC-1
 Lochinvar FTA120K

Pumps:	Armstrong	Wilo	Taco
Collector Loop Glycol	Astro 30B	Star 16B	006B
Collector Loop Drainback	Astro 70B	Star 32B	009B
Tank Loop	Astro 20B	Star 5B	003B

Controller: Steca Differential Control TR 0301U, requires PT1000 probe or lug replacement sensors

Heat Exchanger: SOLARHOT P-HX-210512

System operating parameters:

- Pressure on a glycol system should be between 25-30 psi
- Flow meter should read about 5 gpm on the collector loop and 3.5 on the tank loop

WATTS Series 70A Installation Instructions

Hot Water Extender Tempering Valves

IMPORTANT: Inquire with governing authorities for local installation requirements.

INSTALLATION

(Valve should be installed by a licensed contractor.)

1. Close both the hot and cold water shutoff valves upstream of the valve.
2. Bleed pressure from the system.
3. Remove the thermostat and bonnet assembly (A), which is hand-tight, from body and install valve body as illustrated in diagram. Valve must be trapped as shown.
4. Reinsert Thermostat and Bonnet assembly in body and tighten knurled portion of bonnet securely with pliers or channel locks.
5. **START UP REQUIREMENTS:** Open cold water then hot water shutoff valves. The cold water supply line to Series 70A valve should always be opened first to prevent possible thermostat damage.

ADJUSTMENT

The Series 70A features a new adjustment means which permits you to “dial” a temperature quickly and conveniently. To increase or decrease the water temperature, simply turn the adjusting cap as indicated by the arrow. The adjustment temperature range is 120°F to 160°F and will vary depending on system water pressure changes and water temperature fluctuations.

CAUTION: Need for Periodic Inspection

Periodic inspection by a licensed contractor is recommended. Corrosive water conditions, temperatures over 210°F, unauthorized adjustments or repair could render the valve ineffective for service intended. Regular cleaning and checking of thermostat assembly (A) helps to assure maximum life and proper product function. Frequency of cleaning depends upon local water conditions.

† WARNING

Do not use Watts Series 70A Hot Water Extender Tempering Valves to temper water at fixtures. Severe bodily injury, i.e., scalding or chilling, and/or death may result, depending upon system water pressure changes and/or supply water temperature changes. ASSE standard 1016 listed devices such as Watts MMV, L111 and USG-B valves should be used at fixtures to prevent possible injury.

The Watts Hot Water Tempering Valves are designed to be installed at or near the boiler or water heater. They are not designed to compensate for system pressure and/or temperature fluctuations and should not be used where ASSE 1016 devices are required. These Watts Valves should never be used to provide “anti-scald” or “anti-chill” service.

IMPORTANT: BE SURE TO REMOVE THERMOSTATIC ASSEMBLY

from valve before sweating connections, otherwise it will become damaged.

Minimum Flow Requirements to
Maintain Set Temperature: 2 gpm
for size ½" and ¾"

Warranty

SolVelox DB

Limited 2 year Warranty

SolarH2Ot Limited warrants to Buyer for a period of twenty-four (24) months from the date of being placed in service (but not to exceed thirty (30) months after the date of shipment) that the equipment at the time of shipment will be free from defects of design, material and workmanship. If any defects or malperformance occur during the warranty period, SOLARHOT's sole obligation shall be limited to alteration, repair or replacement at SOLARHOT's expense, F.O.B. Factory, of parts or equipment, which upon return to SOLARHOT and upon SOLARHOT's examination prove to be defective. Equipment and accessories not manufactured by SOLARHOT are warranted only to the extent of and by the original manufacturers' warranty. SOLARHOT shall not be liable for damage or wear to equipment caused by abnormal conditions, acts of God, failure to properly prime or to operate equipment without flow or caused by corrosives, abrasives or foreign objects. THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. In no event shall SOLARHOT be liable for consequential or incidental damages.

5 year extended warranty is available - please speak to your installer or dealer.

Service

To obtain service for your SolVelox™, notify the dealer who installed or sold the SolVelox™. In notifying your dealer, provide identification of your SolVelox™, date of purchase (with proof) and the nature of the defect. Ship the SolVelox™ complete in the assembled condition. Use adequate packaging to prevent damage to the pump during shipment. To obtain the location of the nearest authorized SOLARHOT service and/or distribution facility, call 1-919-439-2387 or write to: **SOLARHOT Ltd.**, 233 East Johnson St Suite O Cary, NC 27513; or on the web at www.solarhotusa.com email: customersupport@solarh2ot.com.