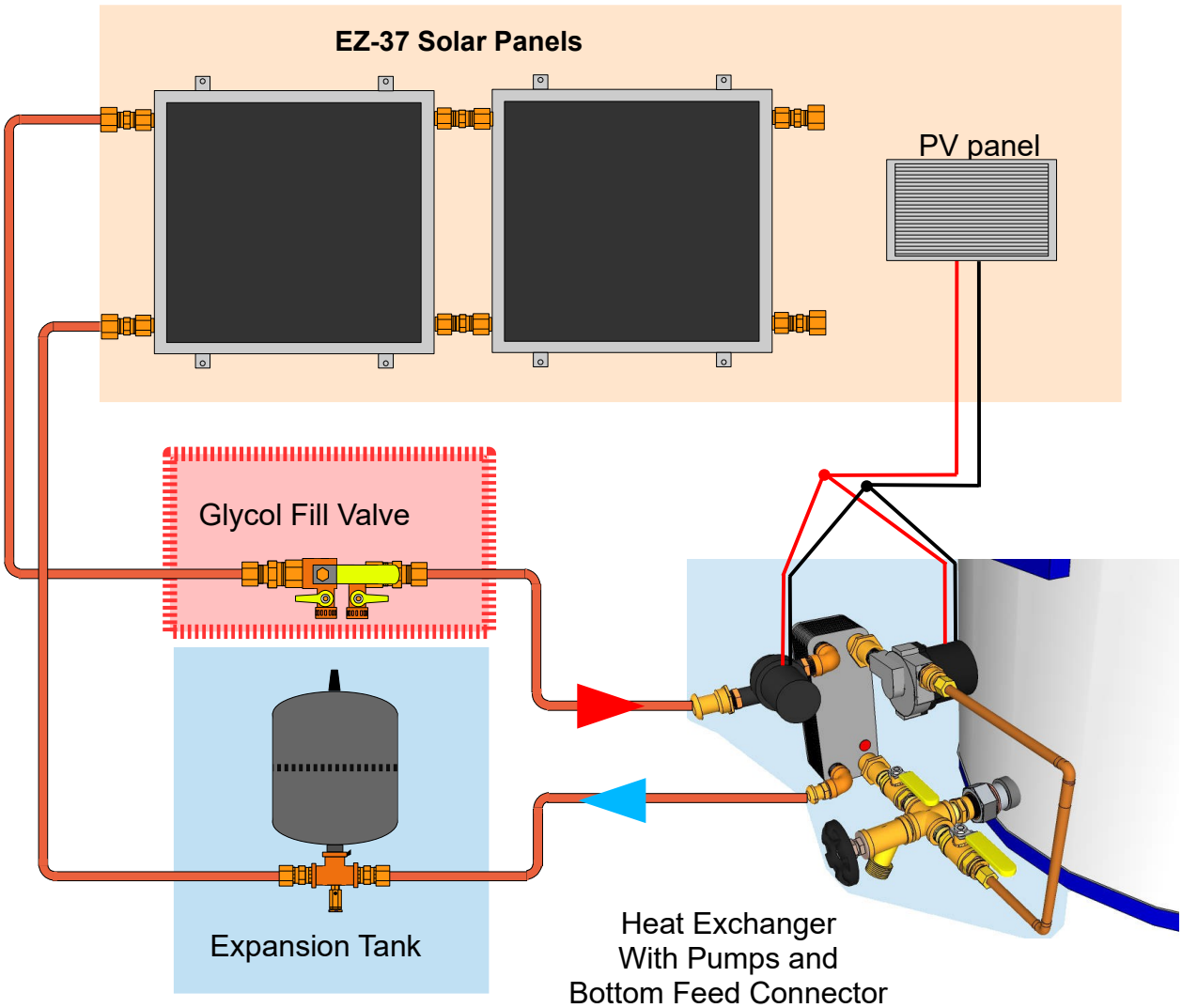
Glycol Fill Valve Instructions

HELIATOS

General System Layout Sketch



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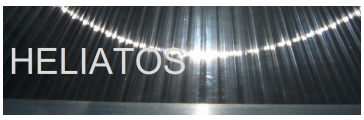

Introduction

This document describes the installation of the HELIATOS Glycol Fill Valve and how to fill the closed loop with glycol using this device.
Filling a closed glycol loop properly and completely is essential to the efficient operation of any closed loop system. To achieve a complete fill it is necessary to pump the glycol through the loop at high speed and with sufficient pressure to carry away all air bubbles. Since the circulation pump itself is never powerful enough to properly flush through all the air a separate drill operated pump is included with the fill valve.
Most closed loop systems use a single walled heat exchanger. Regulations require that only non-toxic solar glycol or food grade propylene glycol be introduced into the system. **Never use automotive antifreeze or similar fluids in a solar water heating system**. Please do not remove the warning label attached to the fill valve so that in the future if somebody else is filling the system they are aware of this requirement.

Fill Valve Installation

The fill valve should be installed in a convenient location inline with the return pipe from the panels.
You will need to be able to attach a hand drill to the pump after it is mounted on the fill valve. Two short pieces of hose are included that will go from the valve to a bucket containing the glycol. Please make sure that the location for the fill valve is chosen so that you have enough access.

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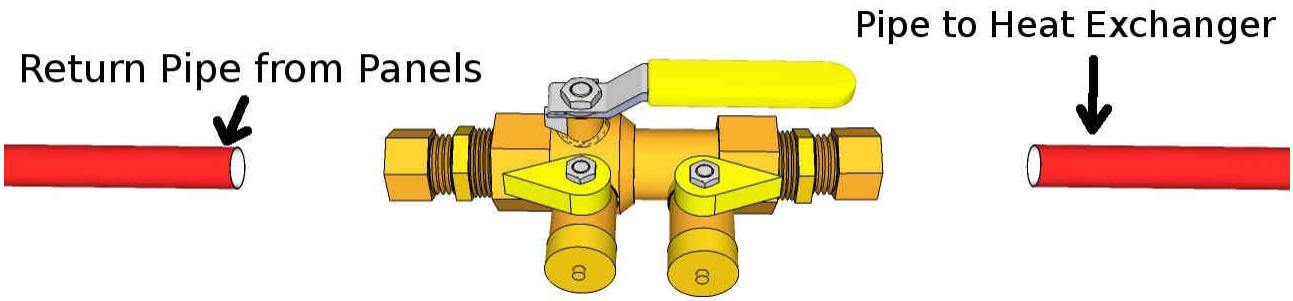
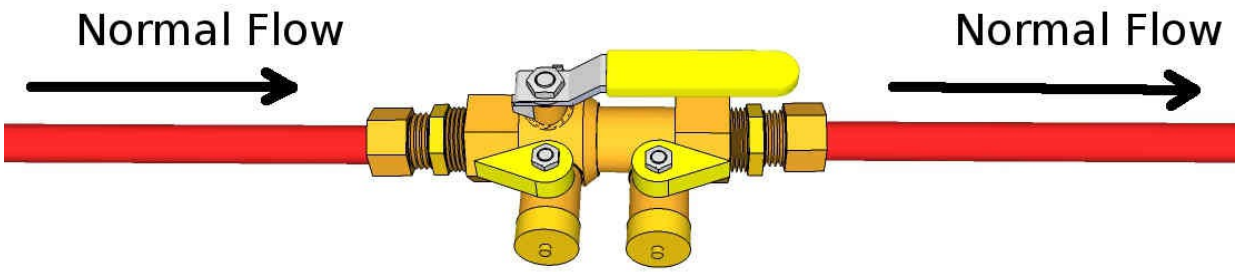


The fill valve comes equipped with compression fittings on both sides. The return pipe coming from the panels must be installed on the left side of the assembly as shown in the illustration. The pipe going to the heat exchanger must be installed on the right. The direction matters and should duplicate exactly what is shown in the illustration.

The compression fittings both have brass ferrules (rings) inside which are suitable for use with copper piping. If you are using PEX the brass ferrules need to be replaced with nylon ferrules and before inserting the PEX pipe into the fittings an insert needs to be pushed into the end of the PEX pipe.

If you are not familiar with compression fittings it may be helpful to watch our video on compression fittings: http://www.youtube.com/watch?v=eQGL8MBLlaE . Do not over tighten the compression nuts.



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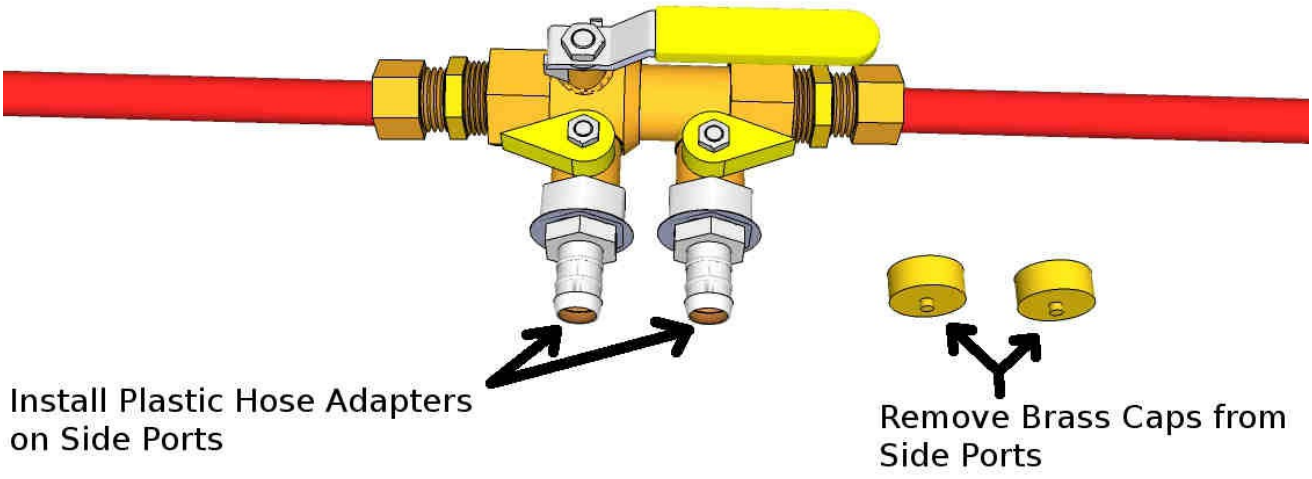
Using the Fill Valve

You will need a bucket to contain the glycol and a power drill. All other parts are included in the fill valve kit.
There are 2 side ports on the main valve body. Under normal operation they are closed off and capped with brass caps.
To fill glycol into the loop you have to first connect the two side ports. The kit includes hose and plastic hose adapters plus a drill pump.

Step 1

Remove the two brass caps from the side ports and thread on the plastic adapters.



A small piece of hose is included to connect the RIGHT side port to the drill pump. One of the longer pieces of hose connects the drill pump to the bucket and the other connects the LEFT side port to the bucket.

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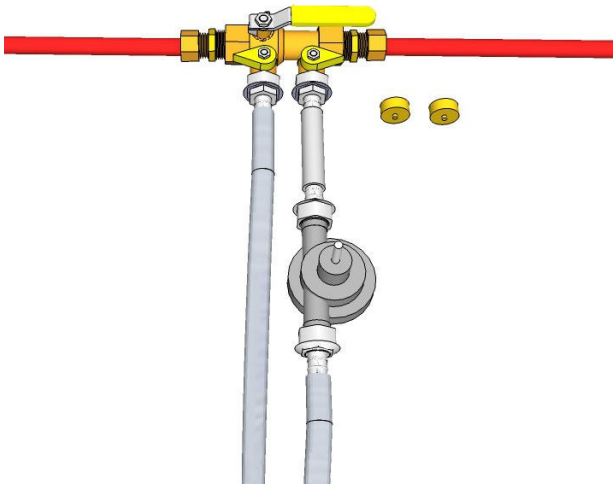
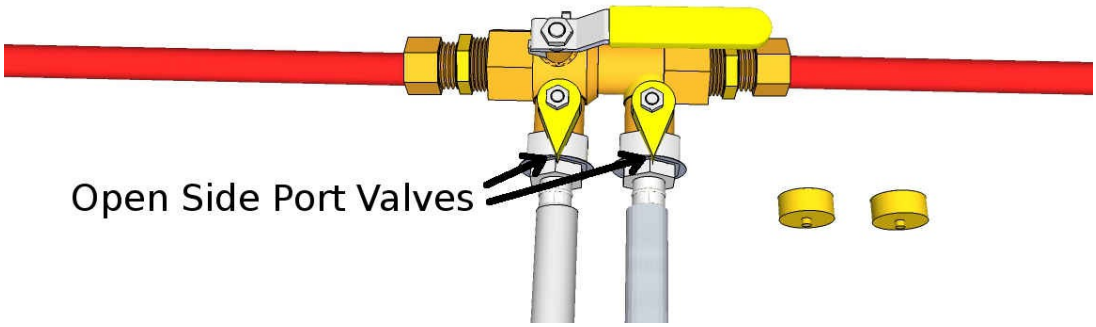


Step 2

Next you have to open the two side port valves and turn the main ball valve to the “Fill” position.



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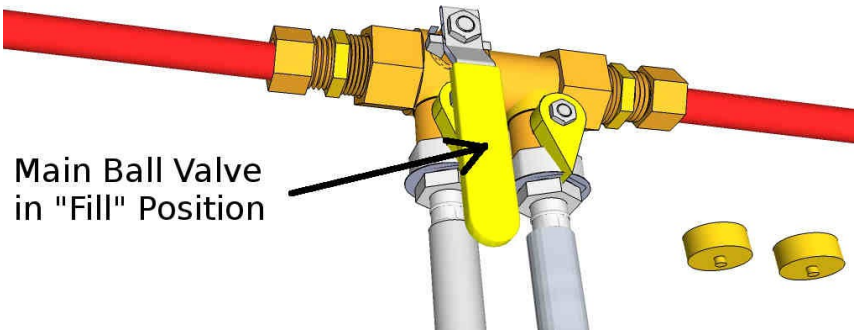
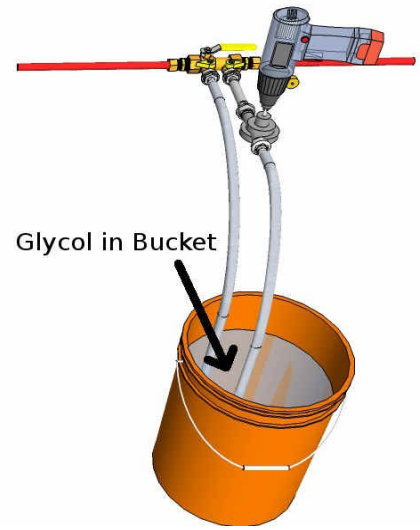


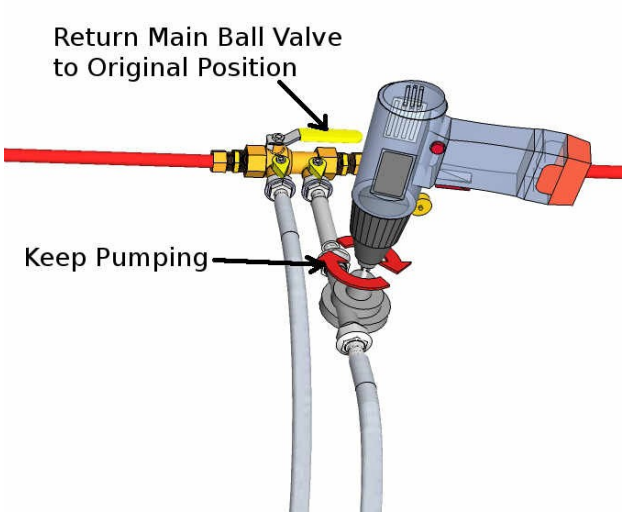
Step 3

Pour all the glycol you have into the bucket. Any excess glycol left over after the fill operation can be returned to the bottle and kept for later use. The intake of the left hose (connected to the pump) needs to be in glycol at all times, otherwise air is sucked up and enters the system.



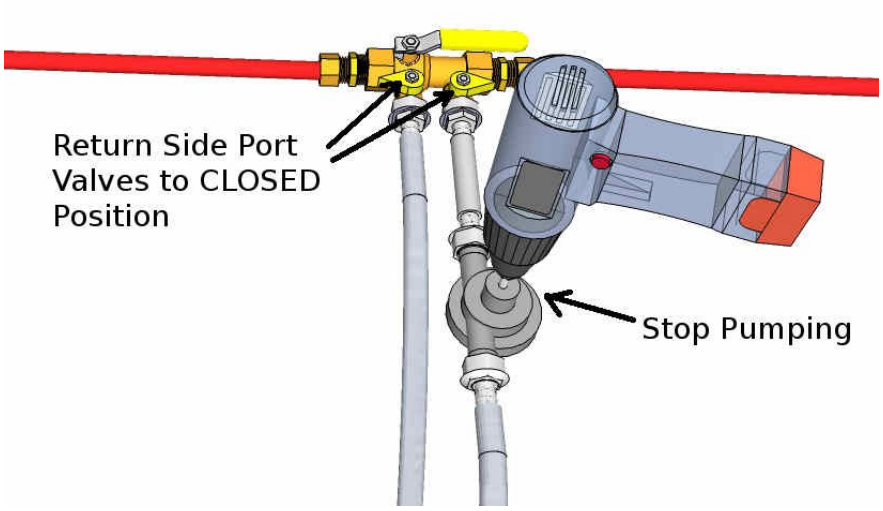
Now you can attach the power drill and start pumping. The glycol is pumped into the left side port and once the entire loop is filled starts to come out of the right side port. You should continue pumping even after glycol starts to come out the right side port until no more air bubbles come out of the system. Once you are satisfied that there is no air left in the loop it is time to return the main

ball valve to it's original position WHILE STILL PUMPING. This will purge air trapped in the valve itself.



Step 4

Now it is time to stop pumping and IMMEDIATELY shut the two side port valves again.



You can remove the hoses, drill pump, and plastic adapters and then return the two brass caps. The glycol can be returned to the bottle and kept for later.

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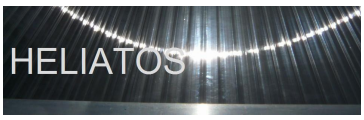

A few days after the first fill of the glycol loop you should repeat the filling process. If a lot of air is present on the second fill another fill cycle should be performed a few days later. If again there is a lot of air this may indicate the presence of a leak. It may be beneficial to the operation of the system to periodically re-fill the system. If there are no leaks it will suffice to perform a re-fill cycle once a year.