Solene
SOLAR HOT WATER SYSTEMS

## How it works:

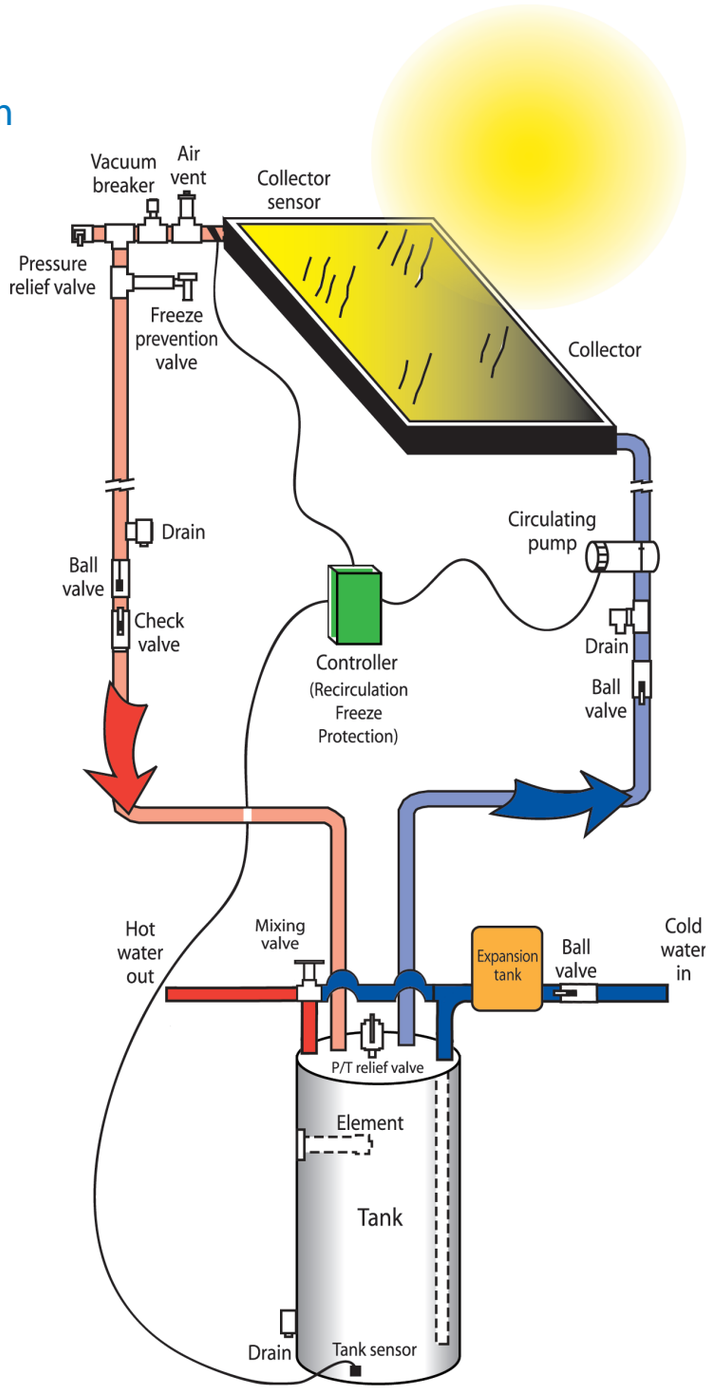
# Direct Open Loop

## Differential Controller Operated System

The direct pumped system has one or more solar energy collectors installed on the roof and a storage tank somewhere below, usually in a garage or utility room. A pump circulates the water from the tank up to the collector and back again. This is called a direct (or open loop) system because the sun's heat is transferred directly to the potable water circulating through the collector tubing and storage tank; no anti-freeze solution or heat exchanger is involved.

This system has a differential controller that senses temperature differences between water leaving the solar collector and the coldest water in the storage tank. When the water in the collector is about 15-20° F warmer than the water in the tank, the pump is turned on by the controller. When the temperature difference drops to about 3-5° F, the pump is turned off. In this way, the water always gains heat from the collector when the pump operates.

A flush-type freeze protection valve installed near the collector provides freeze protection. Whenever temperatures approach freezing, the valve opens to let warm water flow through the collector. The collector also allows for manual draining by closing the isolation valves (located above the storage tank) and opening the drain valves. Another method of freeze protection is achieved by water recirculation. When the temperature approaches freezing, the pump activates to circulate warm water through the collectors.

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