Mixing Valves Work With Heat Pump Water Heaters. Here's What You Should Know.

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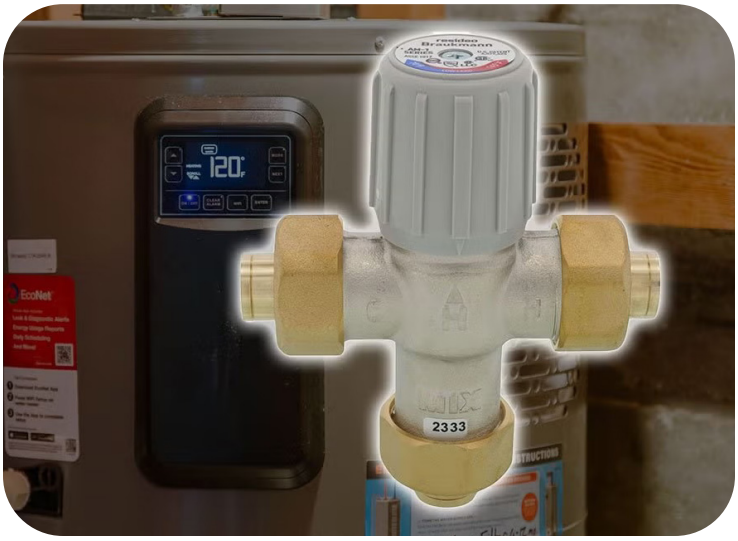
If your customers are thinking they need more hot water, perhaps because the household is growing or they're home more often, a mixing valve can improve the performance of smaller tanks and help them avoid having to upgrade to a larger unit. However, it's important to understand how mixing valves work, how they can affect energy use and what the potential drawbacks are.



A mixing valve is a mechanical device attached downstream from the water heater's outlet. It adds cold water to the hot water leaving your water heater, effectively increasing the amount of warm water being delivered to the home. To ensure that the water arriving at the point of use is sufficiently hot with a mixing valve, the water heater setpoint can be turned up to 140°F. This is easily done on a heat pump water heater using the control panel.

When you're increasing the temperature setpoint of a water heater and adding a mixing valve, a good rule of thumb is that every 10 degrees increase the temperature is like increasing the volume of the heater by 10 gallons. For example, adding a mixing valve to a 50 gallon tank and turning the temperature setpoint from 120° to 130° would make it perform like a 60 gallon tank. The cold water introduced by the mixing valve will also temper the very hot water coming from the water heater, so the water arriving at the sink or bath will feel just like they're used to.

Storing hotter water and using a mixing valve will lead to slightly higher standby heat loss than normal. However, if your customer has a heat pump water heater, they will still see significant energy savings over a conventional electric tank.

While installing a mixing valve is relatively easy and fairly inexpensive, it's important for your customers to keep in mind that these devices require maintenance, such as cleaning, to keep them working properly. The normal lifespan for a mixing valve is around 5 to 6 years, and they typically fail gradually over time, allowing more hot water through them. In the Pacific Northwest, mixing valves are less likely to fail because of the high-quality water and low calcification. Still, a failed mixing valve can be dangerous if someone is exposed to hotter-than-safe water temperatures, so your customers should periodically test the water temperature at your sink and watch for any changes.

Your customers should also know that turning their water heater up to high temperatures, such as 140°F, can shorten the life of their water heater due to increased corrosion, a more frequent need to change the anode rod and calcification. It may also void the warranty.

It's also worth considering that water stored at high temperatures will kill dangerous bacteria quicker. Most notably Legionella, which leads to Legionnaire's disease and grows best in water temperatures of 77–113°. Water stored at 120 will kill the bacteria in a matter of hours; 140° water will kill the bacteria in a fraction of that time.

Overall, adding a mixing valve to a water heater can be an easy way to effectively increase the water heater's capacity. However, it's important to weigh the benefits and considerations carefully and ensure that the proper precautions are taken in order to maintain a safe and efficient system.