

Clean Up With Water Savings

A pre-rinse valve? What's that? If you know, it's probably because you are familiar with commercial kitchens—especially the dishwashing part. Pre-rinse valves are the spray nozzles used to clean leftover food and grease off plates, pots, and pans before putting them in the dishwasher. So why have they become a hot topic now? For the past year or so, both the energy-efficiency and water-conservation communities have been abuzz about these devices because of the tremendous savings low-flow models offer. In fact, FEMP is so impressed with the savings potential and rate of return on investment that it has issued a product recommendation. It is available at www.eere.energy.gov/femp/technologies/eep_low-flow_valves.cfm.

Many pre-rinse spray valves work by brute force, using as much as 7 gallons of hot water per minute (gpm) and generally accounting for more water and sewer costs than the commercial dish machines (warewashers). A low-flow pre-rinse valve uses higher water velocity and more effective spray patterns to remove the food waste just as quickly, while using only 1.6 gpm. Depending on the model being replaced, a new low-flow valve could save anywhere from 30 to 70 percent of the rinse water. One manufacturer has had a low-flow model on the market for a number of years, but it wasn't until the Food Services Technology Center (FSTC) in San Ramon, CA, began testing the devices that the savings potential offered was recognized. Foodservice Equipment Reports calls installing low-flow valves a slam-dunk when it comes to water conservation, not to mention energy savings for water heating.

The concept behind the low-flow valve is so simple that it is surprising only one manufacturer used it. Think about power washing a wood deck or washing your car with a garden hose. Without a nozzle several gallons of water flow out of the hose at low velocity every minute. When you use the hose this way to rinse a car off, it takes a long time and a lot of water. But if you put your thumb over the end of the hose, or even better, attach a nozzle set to a wide spray pattern, rinsing the car off is faster and easier and uses less water. Low-flow pre-rinse valves work on this same principle.

In commercial kitchens pre-rinse valves impact three utility costs: water, gas or electricity (to heat the water) and sewer. By reducing the water flow, all three of these costs are reduced. FEMP estimates that replacing a 3.0-gpm pre-rinse spray valve (the average older model) with a 1.6-gpm low-flow model can save more than \$600 per year on these utility costs with a pay-back of less than 2 months, and this is a conservative estimate. Because this potential is so significant, federal facilities managers should consider changing all the pre-rinse spray valves in their kitchens immediately.

What's most surprising about low-flow pre-rinse spray valves is their low cost and ease of installation. Two manufacturers currently offer products and a third will introduce one shortly.

They retail for about \$75 and should last 5 years under normal conditions. The hose threads, handles and valves are standardized so the new valve can simply be attached to the existing pre-rinse assembly. Regardless of what brand you're currently using, a replacement low-flow valve is available.

Of course, performance is a concern. No kitchen manager wants to install a product to reduce utility costs if it ends up increasing labor costs or process time. To make sure low-flow pre-rinse valves really are an improvement, researchers at the FSTC developed a well thought-out procedure to test the dish cleaning performance of pre-rinse valves. In the test, which uses dried-on tomato sauce to simulate one of dishwashing's most troublesome problems, the low-flow products all performed as well as or better than standard flow spray valves.

There are a number of programs already in place for pre-rinse spray valve replacement. The California Urban Water Conservation Council Rinse & Save Initiative has been the most successful. It has distributed more than 18,000 low-flow valves free of charge to restaurants and other hospitality businesses throughout the state. By calling 916-552-5885, managers of federal facilities in California can receive a valve.

Wisconsin's Focus on Energy offers a similar program. It replaced more than 1,000 sprayers in restaurants, local government institutions, and multi-family food service operations. For the first 100 installations, the staff tested old valves against the new ones to gather performance data for flow, temperature and usage to estimate savings. Their findings indicate that each sprayer replacement is saving an average of 500 therms of natural gas per year. For information on this program call 800-762-7077.

In Texas, the San Antonio Water System asks, "Is your restaurant rinsing money down the drain?" They launched a 1 year retrofit program in March 2004 with a goal of installing 3,000 valves as part of their Certified WaterSaver program. Austin has a similar replacement program.

FEMP recommends valves with a flow rate of 2.0 gpm or less at 60 pounds per square inch of water pressure and a cleaning performance of 26 seconds per plate or less (based on ASTM F2323-03). FSTC maintains a list of products that meet the FEMP recommendation on their web site at: <http://www.fishnick.com/saveenergy/femp>. Their site also includes a calculator (www.fishnick.com/tools/watercost/) so that you can estimate the savings at your facilities. Regardless of whether you get a free valve from one of the programs mentioned above or buy one with agency funds, changing the valves will save thousands of dollars over the next 5 years.

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