

The U.S. Department of Energy's (DOE) Federal Energy Management Program (FEMP) facilitates the Federal Government's implementation of sound, cost-effective energy management and investment practices to enhance the nation's energy security and environmental stewardship.

PURCHASING SPECIFICATIONS FOR ENERGY-EFFICIENT PRODUCTS

Pre-Rinse Spray Valves

Legal Authorities

Federal agencies are required by Executive Orders 13423 and 13514 to reduce water consumption and its associated energy use in their facilities. Executive Order 13423 requires Federal agencies to acquire water-saving products labeled by the WaterSenseSM Program or those designated by FEMP as being among the highest 25 percent for equivalent products.

Performance Requirements for Federal Purchases		
Type	Flow Rate ^a	Cleanability ^a
Pre-Rinse Spray Valves	1.25 gpm or less	26 seconds per plate or less

a) Based on ASTM F2324-03: Standard Test Method for Pre-Rinse Spray Valves.

Buying Low Flow Pre-Rinse Spray Valves

This *Specification* applies to pre-rinse spray valves used in commercial food service facilities such as cafeterias and dining halls. Product performance must be measured in accordance with *ASTM F2324-03: Standard Test Method for Pre-Rinse Spray Valves*. Other types of spray valves (i.e., those used to fill kettles, etc.) and products not tested in accordance with *ASTM F2324-03* are excluded.

The Federal supply sources for pre-rinse spray valves are the U.S. General Services Administration (GSA) and Defense Logistics Agency (DLA). GSA sells pre-rinse spray valves through its Multiple Awards Schedule program and online shopping network *GSA Advantage!* DLA offers them through its Defense Supply Center Philadelphia and online through DOD EMall. When buying from Federal or commercial sources, specify or select products that meet the *Performance Requirements* shown above.

These requirements apply to all forms of procurements, including guide and project specifications; construction, renovation, repair, energy service, operation and maintenance (O&M) contracts; lease agreements; and solicitations for offers. Energy performance requirements should be included in all evaluations of solicitation responses. Buyers shall insert the standard clause from FAR section 52.223-15 into contracts and solicitations that deliver, acquire, furnish, or specify energy-consuming products for use in Federal facilities. Agencies can claim an exception to these requirements through a written finding that no ENERGY STAR qualified or FEMP designated product is life cycle cost-effective for a specific application.

Buyer Tips

There is substantial difference in the performance of pre-rinse spray valves, even among models with the same flow rate, due to variations in product design and spray patterns. Products with high velocity spray patterns show substantially better cleaning performance than those that simply employ a restrictor to reduce water flow. To ensure performance, FEMP requires pre-rinse spray valves to have a cleanability rate of 26 seconds per plate or less.

Some pre-rinse spray valves can be disassembled for cleaning and other maintenance. Consider purchasing products with this feature in areas with hard water.

User Tips

Scale buildup caused by hard water reduces the effectiveness of pre-rinse spray valves and lengthens washing times. Pre-rinse spray valves that can be disassembled should be taken apart and cleaned to remove this scale as needed. Since these products are inexpensive and easily interchangeable with different manufacturer assemblies, it is more cost-effective to replace severely clogged valves instead of "drilling out" the scale to restore water flow, a practice that lowers spray velocity, increases water use, and reduces the overall performance of the valves.

For More Information:

FEMP

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1000 Independence Avenue, SW
Washington, DC 20585-0121
202-586-5772
www.femp.energy.gov

FEMP Product Procurement

www.femp.energy.gov/procurement

Lawrence Berkeley National Laboratory

202-488-2250
www.lbl.gov

Food Service Technology Center (FSTC)

Lists Pre-Rinse Spray Valves Tested In Accordance with ASTM F2324-03
FSTC is funded by California utility customers and administered by the Pacific Gas and Electric Company under auspices of the California Public Utilities Commission.

www.fishnick.com/equipment/sprayvalves/
www.fishnick.com

Federal Supply Sources

U.S. General Services Administration

816-926-6760
www.gsa.gov
www.gsaadvantage.gov

Defense Logistics Agency

www.dla.mil/
www.dod-email.dla.mil

Defense Supply Center Philadelphia

800-DLA-BULB
www.dscp.dla.mil

Early Replacement

The Energy Policy Act (EPA) of 2005 sets the maximum flow rate for pre-rinse spray valves at 1.6 gallons per minute (gpm) at 60 pounds per square inch (psi) of water pressure when tested in accordance with ASTM F2324-03. This performance standard went into effect January 1, 2006. Products predating this standard can use up to five gpm. With an estimated installed cost of \$100, pre-rinse spray valves that meet this *Specification* will have a payback of less than one year. Federal agencies should consider replacing old pre-rinse spray valves with models that meet these *Performance Requirements* as soon as possible.

Cost Effectiveness Example

Performance	Base Model ^a	Required	Best Available ^b
Flow Rate at 60 psi	1.60 gpm	1.25 gpm	0.64 gpm
Annual Water Use	48,000 gallons	37,500 gallons	19,200 gallons
Annual Energy Use	260 therms	200 therms	105 therms
Annual Operating Cost	\$450	\$350	\$180
Lifetime Operating Cost	\$2,190	\$1,710	\$875
Lifetime Cost Savings	—	\$480	\$1,315

a) Based on ASTM F2324-03: Standard Test Method for Pre-Rinse Spray Valves.

b) Data for the Best Available model was obtained from the Food Services Technology Center Web site (fishnick.com/saveenergy/femp/). More efficient products may have been introduced to the market since this Specification was published.

Cost Effectiveness Assumptions

In the example above, pre-rinse spray valves are used an average two hours per day, 250 days per year, which is typical for cafeterias in Federal buildings that serve two meals per day (i.e., breakfast and lunch). *Annual Energy Use* is calculated for a water heater with a thermal efficiency of 80 percent, an inlet temperature of 58°F and an outlet temperature of 110°F. The price for natural gas is \$0.90 per therm, and the combined water and sewer rate is \$4.50 per 1,000 gallons. These utility costs represent the average for Federal facilities in the U.S. *Lifetime Operating Cost* is the sum of the discounted value for annual water and sewer costs and annual energy costs based on average usage and an assumed product life of five years. Future price trends for energy, water, and sewer, as well as a discount factor of three percent are from the May 2010 version of *Energy Price Indices and Discount Factors for Life-Cycle Cost Analysis* (NISTIR 85-3273-25).

Using the Cost Effectiveness Example

In the example above, the *Required* pre-rinse spray valve is cost-effective if its purchase price is no more than \$480 above that of the *Base Model*. The *Best Available* model is cost-effective if its purchase price is no more than \$1,315 above the *Base Model*. In facilities that serve three meals a day or operate 365 days per year, such as dining halls on military bases and hospitals, the savings will be greater.

What if My Operating Conditions are Different?

The Food Service Technology Center has a Web-based cost calculator for pre-rinse spray valves that allows users to input different operating conditions. The calculator is available at fishnick.com/savewater/tools/watercalculator/. Enter the hours and days of operation, utility rates, water heater type and efficiency, and temperature rise at your facility in the “User Input” section and then click “Calculate.” Values that better reflect your operating conditions and utility costs will be displayed in the “Results” section at the bottom of the page.

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

For additional information
please contact:

EERE Information Center
1-877-EERE-INFO (1-877-337-3463)
www.eere.energy.gov/informationcenter

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