4.8 Wash-Down Sprayers

Overview

Wash-down sprayers are hoses used for a variety of cleaning purposes, including washing countertops, floors, mats, and other kitchen areas. Wash-down sprayers use large volumes of water to provide a high-pressure stream capable of cleaning dirt and residue from surfaces.

A wash-down sprayer features a nozzle attached to a hose, which is connected to the water supply. Wash-down sprayers typically deliver flow rates of 7.0 gallons per minute (gpm),[66] while heavy-duty hoses can deliver higher flow rates from 9.0 to 20.0 gpm.[67]

Because wash-down sprayers use large volumes of water to perform cleaning tasks, using another cleaning method could be a viable alternative. These alternative cleaning methods (e.g., mopping, sweeping) are able to perform the same tasks, yet require significantly less water or no water at all. If implementing new cleaning methods is not feasible, replacement options exist that use lower flow rates than wash-down sprayers, including pressure washers and water brooms.

Operation, Maintenance, and User Education

For optimal wash-down sprayer efficiency, consider the following:

- Only use wash-down sprayers to clean floors, countertops, and other surfaces. Do not use wash-down sprayers to clean dishware, which should be cleaned with pre-rinse spray valves.
- If the wash-down sprayer does not have a self-closing nozzle, shut off the water supply when the sprayer is not in use.
- For floor washing applications, consider using a broom and dust pan to clean up solid waste and/or using a mop and squeegee instead of a wash-down sprayer.

Retrofit Options

If a high-flowing wash-down sprayer hose is used without a nozzle, consider installing a self-closing nozzle. This can reduce the flow rate of the wash-down sprayer from up to 20.0 gpm down to 7.0 gpm and prevent water from being wasted when the wash-down sprayer is not in use.

Replacement Options

There are several replacement options for wash-down sprayers. For certain applications, wash-down sprayers can be replaced with mopping or sweeping, which require little to no water use.

[66] Food Service Technology Center (FSTC). 2010. *Water Conservation Measures for Commercial Food Service.* www.fishnick.com/savewater/bestpractices.
[67] U.S. Environmental Protection Agency (EPA) and U.S. Energy Department's (DOE's) ENERGY STAR. Best Practices—How to Achieve the Most Efficient Use of Water in Commercial Food Service Facilities. www.energystar.gov/index.cfm?c=healthcare.fisher_nickel_feb_2005.

Pressure washers serve as good replacement options for facilities that rely on the washing ability of wash-down sprayers. Pressure washers typically have flow rates of 3.0 gpm or less at high pressure and often perform better than wash-down sprayers.

For floor cleaning applications, water brooms can replace existing wash-down sprayers. Water brooms have wide spray patterns with multiple jets that can clean more efficiently than a wash-down sprayer and use significantly less water.[68]

Savings Potential

Water savings can be achieved through wash-down sprayer retrofit or replacement. Existing high-flowing wash-down sprayers can be retrofitted with a self-closing nozzle. Wash-down sprayers can be replaced with a pressure washer or water broom.

To estimate facility-specific savings and payback, use the following information.

Wash-Down Sprayer Retrofit

Wash-down sprayers typically deliver flow rates of 7.0 gallons per minute (gpm),[69] while heavy-duty hoses can deliver higher flow rates from 9.0 to 20.0 gpm.[70]

Current Water Use

To estimate the current water use of an existing wash-down sprayer, identify the following information and use Equation 4-24:

- Flow rate of the existing, high-flowing wash-down sprayer. Most high-flowing wash-down sprayers have flow rates between 9 and 20 gpm.[71]
- Average daily use time.
- Days of facility operation per year.

Equation 4-24. Water Use of Wash-Down Sprayer or Water Broom (gallons per year)

= Flow Rate of Wash-Down Sprayer or Water Broom x Daily Use Time x Days of Facility Operation

Where:

- Flow Rate of Wash-Down Sprayer or Water Broom (gallons per minute)
- Daily Use Time (minutes per day)
- Days of Facility Operation (days per year)

[68] FSTC, *op. cit.*
[69] *Ibid.*
[70] EPA and DOE's ENERGY STAR, *op. cit.*
[71] *Ibid.*

Water Use After Retrofit

To estimate the water use after retrofitting an existing wash-down sprayer with a nozzle, use Equation 4-24, substituting the flow rate of the retrofit nozzle. Self-closing nozzles often flow at a rate of 7.0 gpm.[72]

Water Savings

To calculate the water savings that can be achieved from retrofitting an existing wash-down sprayer with a nozzle, identify the following information and use Equation 4-25:

- Current water use as calculated using Equation 4-24.
- Water use after retrofit as calculated using Equation 4-24.

Equation 4-25. Water Savings From Wash-Down Sprayer Retrofit or Replacement (gallons per year)

= Water Use of Wash-Down Sprayer – Water Use After Retrofit or Replacement

Where:

- Current Water Use of Wash-Down Sprayer (gallons per year)
- Water Use After Retrofit or Replacement (gallons per year)

Payback

To calculate the simple payback from the water savings associated with the wash-down sprayer retrofit, consider the equipment and installation cost of the retrofit self-closing nozzle, the water savings as calculated using Equation 4-25, and the facility-specific cost of water and wastewater. Self-closing nozzles typically cost $100.

Wash-Down Sprayer Replacement

A pressure washer or water broom typically uses 2.0 gpm, while heavy-duty hoses can deliver higher flow rates from 9.0 to 20.0 gpm.[73]

Current Water Use

To estimate the current water use of an existing wash-down sprayer, use Equation 4-24.

[72] FSTC, *op. cit.*
[73] EPA and DOE's ENERGY STAR, *op. cit.*

Water Use After Replacement

To estimate the water use of a replacement pressure washer or water broom, use Equation 4-24, substituting the flow rate of the water broom. Water brooms can use as little as 2.0 gpm.[74] Pressure washers flow at similar flow rates using high water pressure.

Water Savings

To calculate the water savings that can be achieved from replacing an existing wash-down sprayer with a pressure washer or water broom, use Equation 4-25.

Payback

To calculate the simple payback from the water savings associated with replacing the wash-down sprayer with a pressure washer or water broom, consider the equipment and installation cost of the replacement, the water savings as calculated using Equation 4-25, and the facility-specific cost of water and wastewater. Pressure washers and water brooms typically cost $100.

Additional Resources

East Bay Municipal Utility District. 2008. *WaterSmart Guidebook—A Water-Use Efficiency Plan Review Guide for New Businesses*. Pages FOOD8-9. www.ebmud.com/for-customers/conservation-rebates-and-services/commercial/watersmart-guidebook.

EPA and DOE's ENERGY STAR. Best Practices—How to Achieve the Most Efficient Use of Water in Commercial Food Service Facilities. www.energystar.gov/index.cfm?c=healthcare.fisher_nickel_feb_2005.

Food Service Technology Center (FSTC). 2010. *Water Conservation Measures for Commercial Food Service*. www.fishnick.com/savewater/bestpractices.

FSTC. April 2005. *Green Sheet: Water, Water Everywhere and Not a Drop to Waste*. www.fishnick.com/saveenergy/greensheets/GreenSheet_Water_Waste_1.pdf.

[74] FSTC, *op. cit.*