Vehicle Washes

Water efficiency can be achieved in commercial vehicle washes (conveyor, in-bay automatic, and self-service) through a combination of both proper equipment and operational measures. New-vehicle dealers, fleet-vehicle operators, and rental agencies should also use these water-efficiency measures. In all new vehicle-wash businesses, except for self-service, reclaim systems can save 50 percent or more of potable water use. In vehicle washes on industrial sites with limited public access, wash systems can be designed to capture rainfall and use aerobic treatment systems, reducing the use of potable water for washing to less than 10 percent.

Industrial vehicle washes can be designed to reduce use of potable water to less than 10 percent, by capturing rainfall and using advanced treatment systems.

Standards and Practices

The important water efficiency measures pertinent to vehicle washing are:

- proper choice of cleaning equipment, settings, and orientation.
- spray nozzles on arches which produce a fan-shaped spray, oriented parallel to the spray bar.
- friction components for wash cycles in every vehicle wash.

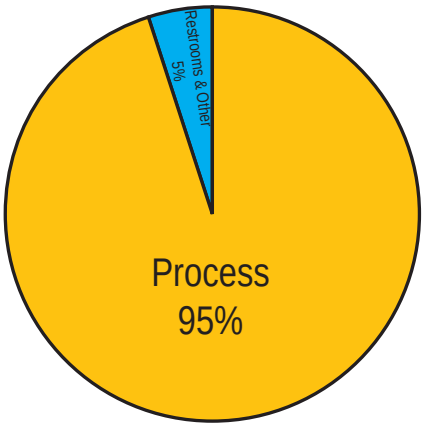
Components such as mitters or brushes are more efficient than "touchless" washes, which use higher pressure and, therefore, usually discharge more water.

Based upon the pump's designed optimum operating pressure, nozzle flow-rate for self-service vehicle washes should be no more than 3 gallons per minute.

Water Reuse and Recycling

Recycling wash water can replace 50 percent or more of the freshwater use:

- gun-type and undercarriage nozzles should be used only with reclaimed water.
- provide reclaimed water to the pre-soak, undercarriage, and initial wash cycles, at a minimum.
- preferred reclaim systems will have sufficient filtration capacity to provide reuse water for all cycles except the final rinse.
- where reverse osmosis is used, the reject water should be reused in the washing process or applied to landscape irrigation.



Typical water uses in vehicle washes

Vehicle washes offer excellent opportunities to employ recycled and on-site reclaimed water.

Water Treatment

Water softeners are often used to remove water hardness for washing. Softening recharge replaces calcium or magnesium in the water with a salt solution containing sodium or potassium. Softeners are recharged and flushed with water to make the brine solutions and to purge the softener of brine prior to being returned to service.

All softener systems should be equipped with controllers that activate based upon the volume of water treated. Alternatively, use controllers that actually measure the hardness. Prohibit timers for softener recharge systems. Where filtration systems are employed, require pressure gauges to determine when to backwash or change cartridges, and backwash based upon pressure differential. Evaluate opportunities to reuse backwash waste streams. Use water softeners and other treatment only when necessary.

Washes including a spot-free rinse option should use deionization equipment, rather than water-softening or reverse-osmosis systems.

Plumbing

Use high-efficiency toilets requiring not more than 1.3 gallons per flush and urinals which flush with 1 gallon or less. Use no automatically timed flushing systems. Use self-closing faucets with flows of 0.5 gpm for hand washing. If available, and where codes and health departments permit, use non-potable water for flushing.

Floor Cleaning

Employ these floor-cleaning efficiency practices:

- use low-flow, high-pressure nozzles on hoses or water brooms for floor and mat washing where a flow of water is needed.
- minimize the need to use a hose as a broom by installing drains close to areas where liquid discharges are expected.

Other

For on-site towel washing, high-efficiency machines with a CEE rating of Tier 3, indicating a water factor of 4.5 gallons per cubic foot of washer capacity, should be used.

Install automatic-shutoff and solenoid valves on all hoses and water-using equipment.

Install faucets on set tubs and janitorial sinks with flows not to exceed 2.2 gpm.

Other water-efficiency measures apply to customer convenience and structure plumbing.

Where irrigated landscaping or water features are present, refer to **"Water Features, Pools, and Landscapes."**

TIP: Conspicuously mark fire-protection plumbing so no connections will be made except for fire protection. Additionally, install flow-detection meters on fire services to indicate unauthorized water flows.

For spot-free rinsing, vehicle washes should use deionization equipment.