

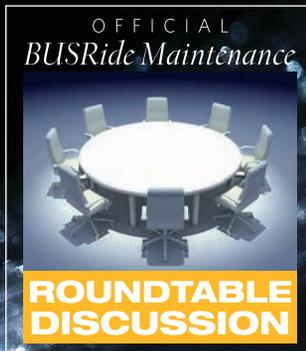
BUSRide **Maintenance**

THE EXCLUSIVE MAINTENANCE RESOURCE FOR THE TRANSIT AND MOTORCOACH INDUSTRY



Trends in Bus Wash Systems





Steve Wawro
President
Westmatic



Philip Luurtsema
Sales Engineer and Marketing
InterClean Equipment, LLC



Charlie Borchard
President
New Wave Industries

Trends in bus wash systems

BUSRide Maintenance explores the latest trends in bus wash systems with industry experts, including spec'ing systems, environmental factors, innovation and hidden costs.

How does your wash system work and what makes it unique?

Steve Wawro: Westmatic designs and manufactures automatic bus, truck and train wash systems that provide a superior level of cleaning while using less water, less chemicals and less electricity than other wash systems on the market today.

Regardless of whether you choose a drive-through or a rollover/gantry system to wash your fleet, Westmatic's electronically-controlled brush movement (no air components) is designed to safely and effectively wash your vehicles, including buses with bike racks. Our intelligent brush systems are easily programmed to accommodate your fleet size or shape. We use the latest PLC technology, incorporating advanced programming and electronics. All aspects of the wash process are constantly monitored and adjusted to provide a safe, efficient and thorough wash result.

This year we're introducing a new modular design and customizable wash system called the Viking. It combines the best of our large vehicle wash systems while giving you the ability to add components and expand the system to accommodate fleet growth and configurations. The Viking can wash numerous vehicle types and can be configured as a rollover/gantry or as a drive-through machine.

The Viking can be designed and built to use a variety of brush configurations (four, five, six or seven brush configurations), touchless modes, or a combination of both. This machine utilizes all variable frequency drive/soft start motors ensuring safe, gentle friction cleaning.

As with all Westmatic wash systems, owners can add equipment options such as chassis and wheel wash, dryers, RFID fleet monitoring and water recycling and purification.

Charlie Borchard: Here at PurWater we provide reclaimed water for bus wash systems. With modern cyclonic separation and advanced ozone treatment, we can recycle up to 80 percent of wash water for reuse, while eliminating the odor and dirty water look from earlier generations of recycle systems.

Philip Luurtsema: It's difficult to provide an executive summary of our wash systems because there are many to choose from. Our friction systems use an oil over water cylinder to help provide precise movement and we also optimize the gearboxes and motors to maximize efficiency. InterClean has a rich history of designing effective touchless cleaning solutions and sustainable water recycling systems. Our wash systems utilize this technology to help reduce maintenance costs, damage to buses or the wash equipment and to ensure the

system is simple to use and maintain. Our most common approach however, is to offer systems that combine touchless cleaning and advanced water recycling and friction cleaning in order to provide the customer with the best cleaning capabilities at a cost that meets their budget. This design approach accommodates buses with bike racks, large mirrors, cameras and other equipment mounted on the outside of the transit vehicles.

When spec'ing a bus wash system, what's the checklist for agencies and operators? How can they best ensure that the system they're purchasing is right for their operation?

Luurtsema: The process of properly specifying a wash system can be very complicated. This is the reason InterClean utilizes a thorough site survey process. We work with the end user to evaluate a number of factors, such as vehicle type(s) and features, building infrastructure, electrical and water capacity, and many other factors. Once we understand the basic parameters we can help develop specifications that reflect the specific needs of the end user.

The following is an example of a checklist we would use during a site survey to develop the specification for the bus wash system:

- What do I want to wash?
- Are there bike racks, mirrors, CNG or other equipment installed on the bus exterior?
- Is a chassis wash required?
- Are there other vehicles in the fleet (minivans, paratransit or cars) that need to be washed?
- How many vehicles will be washed per day and what is the maximum rate (vehicles per hour)?
- How often are the vehicles going to be washed?
- Is there a recycled water requirement?
- What add-on features are desired, such as spot free rinse or blowers?

Borchard: Sizing the PurWater reclamation system is dependent on the water demands of the bus wash system. We have multiple sizes available and can interface with any wash system.

Wawro: Before choosing a wash system, we work with our customers to find out what they are doing now and what changes they foresee in the future.

Here's what they should think about:

- What types of vehicles make up your current fleet and how do you see your fleet growing in the future? For example, they may have a fleet of 40' transit buses with



bike racks but will add paratransit vehicles and articulating buses in the future.

- How many buses do you need to wash each day? Do you need to increase your volume? Are your routes expanding and are you adding more buses to your fleet?
- Who is responsible for washing the bus? The actual driver or maintenance staff? We have a system that guides the driver through the wash system via a series of traffic signals. We want to make the wash experience as safe, consistent and thorough as possible.
- Have you considered life cycle costs and operating costs? Consumables, maintenance and repairs can put a strain on your budget. Our goal is to help you manage costs and prolong the life of your buses by cleaning them well and eliminating concerns for damage in the wash process.
- Water regulations, both for usage and for disposal, may become stricter in the future. But why wait? A water recycling system is a smart choice as it saves water, reduces sewer fees and is the right thing for the environment.

What environmental factors must operators consider before investing in a new system – either about the system itself or in their own facilities?

Borchard: There are tanking requirements for storage of the used water to allow for settling and treatment. These are system dependent. The site must also have a sewer connection as well as adequate electrical to run the system. Typically, 20- 30 amps of three phase either 208V / 460V, and another 20 amps of 120V are necessary.

Wawro: Water usage and the condition of the waste water being discharged to the sewer should be an operator's top concern. It's important to consider not just how much water a system uses, but what can be done about the potentially harmful substances that the system is collecting and discharging into the sewer. These substances aren't just wash chemicals, we need to remember what else could be coming off the vehicles such as salt, dirt, oil and corrosive materials that build up under your vehicle.

Fortunately, there are great solutions available, but they require planning to ensure that the infrastructure is in place to support the water reclaim and treatment (purification) options available. Proper drainage and ground tank systems are necessary to support these important options.

Luurtsema: There are several key environmental factors to consider and they include the water and energy consumption of the wash system, the specifics of the water recycling system and how the water is being discharged from the wash system. There are also some chemicals that can cause environmental or health problems, and it's critical to understand what types of chemicals are needed for the wash and water recycling system to work properly.

There may also be factors related to the equipment being washed; for example, if the buses are older or prone to leaking fluids, an oil water separator may be necessary, or if corrosive agents are applied to the roads, such as calcium chloride, it is important to have a plan to capture these types of corrosives before they are discharged to the sewer.

What factors are driving innovation in the field of vehicle washing technology?

Wawro: User feedback and expectations, and available technologies such as wireless communications or infrared reading, are the biggest

factors. Wash system owners want equipment that is easy to use, is low maintenance and can accommodate their entire fleet from the largest bus down to the smallest car. Having a system that is highly customizable ensures that the varying demands of fleet managers can be met easily. Smarter and faster are the recurring themes and that's what we are constantly pursuing.

Luurtsema: The two biggest factors driving innovation are: 1) the need for sustainable, environmentally friendly systems and 2) the ever-increasing capabilities of software technology. In the case of (1), systems must be designed to minimize water and electricity usage. Wash system manufacturers must properly size electric motors and their usage profile to minimize consumption. Water recycling systems are also evolving to meet the needs for increased recycled water percentages as well as the need to generate higher quality, cleaner water.

In the case of (2), systems used to operate with push buttons and manual switches on control panels. Today, wash systems can be operated from a smartphone and monitored from computers anywhere in the world. Data on a number of factors, such as water usage and faults, can be captured, stored, and pushed to operators via email or text message.

Borchard: On the water reclamation side, the ever-increasing cost of water and sewer are making it nearly a fiscal requirement to have water reclamation. Water reclamation is not just for those who are looking to be environmentally-friendly.

What "hidden" factors can drive up the cost of washing buses? Are there operational costs that operators might not consider when purchasing a system?

Luurtsema: Most of the hidden costs are related to utility consumption, maintenance and damage caused by the wash systems. To help identify these potential hidden costs, it's important for the manufacturer to provide a "cost per wash" analysis so there are no surprises regarding water and electrical usage. It is also important to review the required maintenance recommendations and design features to make sure the equipment is properly designed for the types of vehicles being washed. Often end users may not have the maintenance capabilities to adequately maintain a wash system and keep it operating at peak condition. This drives the need to ensure the wash manufacturer has local representation and can provide trained technicians to service the system.

Borchard: The previously mentioned water and sewer costs without a PurWater reclaim system could drive up costs substantially.

Wawro: As with any piece of equipment, some maintenance will be required to keep it operating in an efficient manner. Ideally, one or two associates will be necessary to perform daily basic inspections to check for wear, leaks and filter clean-outs. Periodic cleaning of trenches and pits is also necessary to keep the wash bay from foul odors and sludge residue. All customers should take advantage of scheduled preventative maintenance checkups on their equipment, utilizing factory-trained technicians. These inspections provide a thorough evaluation of the equipment above and beyond the basic daily in-house checks. They help the owner and the manufacturer to stay ahead of any potential issues as well as budget and schedule any necessary repairs. **ERM**

PROJECT A CLEAN, PROFESSIONAL IMAGE TO INCREASE RIDERSHIP AND IMPROVE VEHICLE LIFE SPAN WITH WESTMATIC LARGE VEHICLE WASH SYSTEMS



Westmatic bus wash systems are incredibly efficient and versatile with the lowest life-cycle-cost of any machine on the market today. This is based on our reduced maintenance requirements and reduced consumables, such as water, power and chemicals.

Our high-quality brushes protect your bus graphics while giving you a high quality wash. Westmatic systems also safely wash transit buses with front-mounted bike racks.

Finding A Wash System That Meets Your Needs

If you are purchasing your first machine, replacing existing equipment, or building a new facility, our knowledgeable staff will work with you to determine the best equipment for your fleet. We work closely with owners, architects and engineers to develop infrastructure requirements, utility requirements, and an equipment package that will handle your washing needs for many years to come.

Demanding Wash Schedules—Choose our Drive-Through

Public transit fleets with a demanding wash schedule (more than 30-40 buses per day) are a perfect fit for Westmatic's Drive-Through machine. The Drive-Through reduces wash cycle time to about 90 seconds per bus. The machines are completely customizable and available to operate with brushes, in a touchless mode, or with a combination of both.

Rollover Systems for Less Demanding Wash Schedules

Bus fleets with a less demanding wash schedule (less than 30-40 buses per day) are typically advised to choose a rollover or gantry machine.

This style of machine directs the driver to pull into the wash bay and park. The machine begins to wash over the vehicle on a floor-mounted track system. Wash cycle time is about 5-6 minutes per bus.

Water Recycling and Water Purification

To reduce your ecological impact as well as your water costs, incorporate one of our efficient and compact water treatment systems into your wash process.

Westmatic offers a variety of accessories for our bus, truck and train wash systems:

- Choose a chassis wash for the ultimate in vehicle underbody cleaning
- A high-pressure wheel wash to clean dirt, mud, road salt, and other contaminants that can build up on wheels
- Detail wands that are efficient and easy to use
- Vehicle drying system that removes excess water from the vehicle after exiting the wash system

Watch our systems in action!

Our 6-Brush Transit Master Drive-Through is ideal for vehicles with bike racks. (https://www.youtube.com/watch?time_continue=34&v=Gta76MVW3TY)



Transit-Master. For buses with front mounted bicycle racks. Dryer system.



2-Brush Hybrid Drive-Through



3-Brush Rollover with festoon mounted detail wands.



Water Recycling System

For more information on the right system for you, contact Scott Witter at 1-866-747-4567 ext. 109 or email him at scott.witter@westmatic.com

www.westmatic.com

CLEAN & GREEN

ENVIRONMENTALLY-FRIENDLY BUS AND TRAIN WASH SYSTEMS



We are committed to manufacturing, installing and supporting bus and train wash systems that feature superior design, engineering, reliability and performance.



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