# Battery Washing Machines vs. Manual Cleaning

Battery washing machines are an essential component of a well-equipped forklift battery room, and any operation that uses lift trucks regularly should invest in wash equipment that optimize efficiency while complying with OSHA standards. For some operations, that means incorporating portable battery wash cabinets for improved versatility, but before making that decision, it's helpful to understand the options.

First, a quick overview of what battery washing machines actually do: Over time, lift truck batteries accumulate electrolyte build-ups that can cause electrical issues. These electrical issues can result in lost time and productivity — not ideal when forklifts are a key part of a warehouse's infrastructure.

Electrolytes build up on batteries for a variety of reasons. Boil-overs can leave some amount of residue behind, and leaks can accumulate over time; however, batteries also accumulate build-up during the normal charging process, as a small amount of acidic vapor is released during the charge.


In other words, there's no way to completely prevent electrolyte accumulation, but regular washing will prevent the issue from affecting your fleet's operation.

There's more good news: In a sense, battery washing is a simple process. However, the task must be carried out in accordance with OSHA regulations and EPA guidelines — specifically, the EPA's Resource Conservation and Recovery Act (RCRA), which we've covered in detail in earlier articles. Proper battery washing equipment makes compliance fairly straightforward.

When purchasing battery washing equipment for your operation, you'll choose between manual cleaning stations (designated places where workers can clean batteries safely) and automatic battery washing machines (specialized equipment that carries out the cleaning). Here's everything you need to know to make an educated decision.

## Advantages (and Disadvantages) of Manually Cleaning Forklift Batteries

OSHA regulations allow workers to manually clean batteries, provided that they do so in a properly equipped environment. Workers must be provided with "face shields, aprons, and rubber gloves," and eyewash stations must be within 25 feet of the battery handling area.

Additionally, RCRA guidelines require wastewater to be properly contained prior to disposal. Manual cleaning stations collect the wastewater, making compliance much easier while allowing workers to wash batteries safely and efficiently. Advantages

of manual battery washing include:

- **Lower Cost of Entry -** For most warehouses, the low cost of manual battery wash stations is their primary benefit. Automated battery washing machines can eventually provide a better return on investment, but for operations with small battery fleets — and operations building their fleets — manual battery wash stations are remarkably cost effective.

- **Versatility for Growing Operations -** New battery wash cabinets can be installed quickly and inexpensively. If a warehouse needs to temporarily expand the size of its fleet, manual wash stations are generally a better option than automated systems.

- **Mobility for Service Providers -** Mobile wash stations can be excellent investments for service providers that need to maintain batteries on-site.

BHS offers a variety of manual wash stations that keep expenses in check while ensuring compliance. The BHS Roller Wash Station (RWS) is equipped with spark-proof rollers that allow batteries to be easily loaded onto the wash deck; a drain tray collects wastewater for disposal (ideally through a dedicated system like the BHS Recirculation/Neutralization System). For vertically extracted batteries, Hardwood Wash Stations (HWS) provide more convenient functionality.

## Advantages of Automated Battery Washing Machines

For most large operations, automated equipment has significant advantages over manual wash equipment. Hand-washing becomes impractical at scale, and automated machines can keep large fleets running smoothly.

Battery washing machines are typically installed at the end of a line of battery stands; workers use an Operator Aboard Battery Extractor or gantry crane to move the batteries into the wash cabinet, which handles the job in a matter of minutes.

Benefits of this approach include:

- **Limited Exposure for Workers -** While operations still need to make appropriate considerations, workers aren't directly exposed to electrolytes, which substantially limits the safety risks associated with the washing process.

- **Better Efficiency -** Using automatic battery washing machines frees workers for other tasks. Perhaps more importantly, the cabinets standardize wash times, keeping lift trucks in peak condition while limiting productivity losses from unscheduled downtime.

- **More Versatility -** BHS Battery Wash Cabinets feature adjustable wash times, feed conveyor systems, automatic air blow-off, powered rollers, and other features to make the process as simple and efficient as possible. That's true regardless of whether your operation loads batteries horizontally or vertically.

If your operation uses a large lift truck fleet, automated machinery provides clear benefits over manual washing. To get the best possible result, however, you'll need to carefully evaluate your options when setting up your battery room.

The BHS Battery Wash Cabinet (BWC-1) accommodates a range of battery sizes and has an adjustable timer, while the similar BWC-1-M has integrated fork pockets to allow workers to move the cabinet to different locations. This feature can accommodate growing facilities with changing battery room configurations. It's also an ideal option for service providers that want to offer on-site battery washing.

The BWC-2 features similar stainless steel construction, but more powerful washing mechanisms and an air-operated automatic door. All three options work well for side-extraction applications. The BWC-3, which has an in-feed conveyor, is required for vertical extraction gantry crane systems.

## All Battery Washing Requires Appropriate Wastewater Handling

Whether your operation opts for manual or automatic battery washing, you'll need to consider RCRA requirements for water treatment and ensure that you have an appropriate process for handling wastewater. BHS Battery Wash Stations and Cabinets have wastewater handling features built in, as both can be hooked up to Recirculation/Neutralization Systems and Wastewater Recycling Stations.

Recirculation/Neutralization Systems clean water for reuse. This water eventually needs to be treated as hazardous waste, which will typically mean contracting a third party. Larger fleets should consider investing in Wastewater Recycling Stations, which generate drain-safe water and a non-leaching sludge that can be sent to the landfill. A closed-loop system is an environmentally safe (and economically sound) goal for larger operations.

Ultimately, manual battery cleaning is appropriate for small fleets and service providers that need to perform maintenance onsite. Automatic battery washing offers a serious advantage in efficiency, however, and can be a better investment over time. To evaluate options for your facility, contact the BHS sales team at **1.800.BHS.9500.**

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