



Battery Handling Equipment

Battery Wash Equipment & Wastewater Treatment

BHS Battery Wash Equipment simplifies an essential battery maintenance task while helping to comply with strict environmental regulations. Regular cleaning with BHS Battery Wash Cabinets and Stations can prolong the operational life spans of forklift batteries and extend the productivity of lift truck fleets. Options include labor-saving auto-wash cabinets, portable wash stations, and battery beds configured for side- or vertical-extraction fleets. BHS also offers several options for safe, compliant wastewater disposal.



Ask about custom battery handling equipment for your unique application.

As a full-service original equipment manufacturer, BHS can build custom solutions for any material handling challenge. Contact the BHS sales team at bhs@bhs1.com to learn more.

 **1.800.BHS.9500**

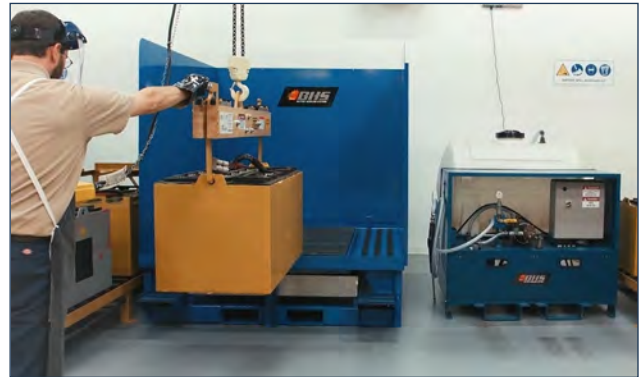
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IMPROVE FORKLIFT BATTERY PERFORMANCE BY USING BHS BATTERY WASH EQUIPMENT

Forklift battery manufacturers recommend washing batteries regularly to remove corrosive electrolyte, dirt, and pollutants that can detract from battery performance. Failing to wash lift truck batteries can result in a number of costly problems, including:

- Increasing self-discharge rate.
- Shorter operating life.
- Weakening of battery cases through corrosion.
- Voltage leaks during operation.
- Increased exposure to electrolyte for battery handling staff.

Washing batteries prevents these issues from developing, but contaminated runoff must be contained in order to prevent pollution and comply with environmental requirements. BHS Battery Wash Equipment allows battery room operators to maximize battery performance while collecting wastewater for recycling, recirculation, or disposal.



CHOOSING BATTERY WASH EQUIPMENT FOR YOUR FORKLIFT BATTERY ROOM

The size of your battery fleet determines which battery wash products will provide the greatest return on investment. Other factors include your wastewater disposal plan, battery room floorspace requirements, and staff availability for maintenance tasks.

High-volume applications will realize significant time and staff-hour savings by installing a powered BHS Battery Wash Cabinet (BWC). These adjustable stainless steel systems fully enclose batteries for automated washes.

Operations with lighter battery maintenance requirements may opt to wash batteries manually, in which case BHS Wash Stations provide dependable containment for wastewater and overspray.

If you need to relocate your wash station frequently, choose the Mobile Wash Station (MWS).

Contact a BHS Representative at 1.800.BHS.9500 for assistance determining the appropriate equipment for your application.

MANAGING WASTEWATER FROM FORKLIFT BATTERY WASHES

BHS Battery Wash Equipment provides dependable collection of wastewater, overspray, and post-wash dripping. Once that contaminated water is collected, there are several options for safe, compliant wastewater disposal:

Create a Closed Loop System with the BHS Recirculation/Neutralization System.

The most sustainable option is to recirculate used water by connecting a Battery Wash Cabinet to a Recirculation/Neutralization System (RNS). The RNS filters wastewater down to 5 microns, reusing the cleaned water for future washes. This closed system limits water use and greatly reduces the risk of accidental pollution.

Collect Wastewater for Third-Party Disposal.

Every model of BHS Wash Equipment collects the runoff from battery washing, and waste disposal contractors can collect and process the byproduct for a fee. While this option is not as sustainable as recirculation, it should comply with environmental requirements.

Install a BHS Wastewater Recycling System for In-House Water Treatment.

Rather than hiring third-party contractors, large fleets can treat water with a Wastewater Recycling System (WRS). This automated system removes harmful particulates from water at a rate of 2 gallons per minute, and meets EPA and NJDEP regulations for safe disposal.



Overview of Equipment

Battery Wash Equipment

MANUAL BATTERY WASH STATIONS

MOBILE



MWS-47-SS



MWS-47-SS-KIT



MWS-47-WT-SS



MWS-72

STATIONARY



RWS-3



HWS-3

POWERED BATTERY WASH CABINETS

MOBILE



BWC-1-M



BWC-1-M-KIT



STATIONARY



BWC-1



BWC-2



BWC-3

Wastewater Treatment

RECIRCULATION / NEUTRALIZATION



RNS-1



RNS-3-SS



RNS-4-SS

WASTEWATER RECYCLING



WRS-1



WRS-2



WRS-2-KIT

Wastewater Recycling Systems eliminate the need for hazardous waste disposal.

Learn more about each of these solutions on the following pages.

Mobile Wash Stations

The Mobile Wash Station (MWS) provides a cost-effective solution for cleaning electrolyte and other residue from lift truck batteries. Extend the life of batteries and reduce electrical problems in forklifts by using this essential maintenance equipment regularly. MWS models contain fork pockets for easily transporting the wash station to where workers need it.* Mobile Wash Stations provide multiple benefits to end-users and dealers alike. Heightened mobility allows users to build flexible, modular battery rooms. Dealers who offer washing services can bring a Mobile Wash Station to the client's facility; this allows them to drastically reduce downtime, generating more value for their customers. Dual anchor points allow the station to be secured during transport or permanently secured inside a facility.

MWS-72

Model MWS-72 is the ideal solution for washing forklift batteries in Gantry Crane systems or other vertical-extraction applications. It includes base-mounted fork pockets for ease of travel. The frame is made from heavy-duty steel, then powder-coated to resist corrosion, rust, and abrasion. MWS-72 has a recycled polyethylene decking that is acid-resistant, non-conductive, and environmentally friendly. Non-skid steps and a 15" walkway provide easy access for workers, and a removable drain tray makes cleaning simple. NOTE: Also available in stainless steel (MWS-72-SS).

FEATURES & BENEFITS

- Designed for overhead (crane) loading
- Fork pockets for easy mobility*
- Anchor points secure equipment during transport
- Wide, non-skid steps and 15" (381 mm) walkway around wash deck for operator access to battery
- Recycled, polyethylene decking is acid resistant, non-conductive, and environmentally friendly
- Stainless steel drain tray is removable for easy cleaning and drain tray baffles reduce splashing
- Standard 0.75" (19 mm) brass hose connection



MWS-72

MWS-47-SS

The stainless steel model MWS-47-SS creates a safe, EPA-compliant workspace for washing forklift batteries in either vertical- or side-extraction applications. The frame is constructed from 304/316 stainless steel for corrosion resistance and extreme durability. Inside, a battery bed of poly lead rollers and front-to-back friction strips simplifies loading and unloading the unit from the front.

Fork pockets boost mobility, giving users the option to carry the unit to batteries. This limits downtime caused by the vital maintenance task of washing forklift batteries. Meanwhile, the MWS-47-SS contains and transfers all wastewater to an external wastewater tank (not included) for proper disposal. Splash curtains help to contain overspray and runoff.

FEATURES & BENEFITS

- Stainless steel construction offers rugged durability
- Fork pockets for easy mobility*
- Dual anchor points secure equipment during transport or to permanently secure equipment inside facility
- Friction strips from front to back
- Poly lead rollers with stainless steel shafts (three rows with two rollers per row)
- Clear, vinyl drop-in splash curtain
- 60" (1524 mm) side panel height
- 32" (813 mm) rear top panel depth, hinged at mid-point



MWS-47-SS

MWS-47-SS-KIT

This mobile wash solution includes the stainless steel MWS-47-SS Mobile Wash Station and two 330 gallon mobile water tanks - one for clean water and one for used wash water.

MWS-47-SS-KIT CONTENTS

- (1) Mobile Wash Station model MWS-47-SS (see above)
- (1) 120 V ac automatic sump pump in an external drain pan for easy clean-out and maintenance
- (1) 330 gal (1249 L) mobile clean water tank
 - (1) Wash pump with 150 PSI at 5 gal/min mounted to clean water tank (not pictured)
 - (1) Auxiliary hand spray wand
- (1) 330 gal (1249 L) mobile dirty water tank



MWS-47-SS-KIT

MWS-47-WT-SS

Model MWS-47-WT-SS allows users to wash forklift batteries on-site, regardless of water source or wastewater disposal. The frame, complete with fork pockets, supports a stainless steel MWS-47-SS Mobile Wash Station and integrated, 120 gallon tanks for both clean and used wash water. The result is a turnkey solution for washing forklift batteries on-site, then hauling away wastewater for EPA-compliant disposal. The clean water tank includes a ball valve with a garden hose adapter that connects with all common power washers, while the wastewater tank features a ball-valve drain.

FEATURES & BENEFITS

- Complete, self-contained station for washing forklift batteries
- Allows battery maintenance providers to provide on-site wash service
- Stainless steel construction offers rugged durability
- Fork pockets for easy mobility*
- Multiple anchor points secure equipment during transport or to permanently secure equipment inside facility
- Friction strips from front to back
- Poly lead rollers with stainless steel shafts (three rows with two rollers per row)
- Clear, vinyl drop-in splash curtain
- 54" (1372 mm) side panel height (measured from top of wash deck)
- Fold-down side steps to stand on while washing batteries. Steps stow folded up for transport
- (2) 120 gallon poly water tanks - (1) clean water and (1) wastewater - allowing unit to be self-sufficient
- Ball valve drain with 1" FNPT connection on waste water tank
- Ball valve with garden hose adapter for power washer connection on clean water tank
- Dedicated receptacle for commercial, 120 V electric power washer (not included) with cutout to prevent overflowing of wash water
- 120 V single phase float switch and sump pump
- (2) 120 V GFCI duplex receptacles for powering maintenance accessories
- Built-in storage area below water tanks for power washer and maintenance items
- 20 ft power cord with plug
- Custom alterations available



MWS-47-WT-SS



Side Steps fold down

MODELS & SPECIFICATIONS

	MWS-72	MWS-47-SS	MWS-47-WT-SS
Frame Construction	Mild Steel	304/316 Stainless Steel	304/316 Stainless Steel
Wash Deck Material	HDPE Poly Lumber	UHMW Friction Strips	UHMW Friction Strips
Drain Port Size	Standard MGHT	1" NPTF	1" FNPT
Drain Tray Capacity	70 gal / 265 L	23 gal / 87 L	23 gal / 87 L
Max. Weight Capacity	5,000 lb / 2268 kg	4,000 lb / 1814 kg	4,000 lb / 1814 kg
Overall Depth	81" / 2057 mm	61.375" / 1559 mm	79.625" / 2023 mm
Overall Width	72" / 1829 mm	58" / 1473 mm	55.125" / 1400 mm (Steps stowed) 73.75" / 1874 mm (Steps Down)
Overall Height	78" / 1981 mm	79.625" / 2022 mm	81" / 2058 mm
Height from Floor to Top of Wash Deck	19" / 483 mm	11.125" / 283 mm	11.125" / 283 mm
Wash Deck Area (W x D)	41" x 56" / 1041 mm x 1422 mm	47" x 55" / 1194 mm x 1397 mm	47" x 55" / 1194 mm x 1397 mm
Battery Width	10" Min / 42" Max 254 mm Min / 1067 mm Max	12" Min / 42" Max 305 mm Min / 1067 mm Max	12" Min / 42" Max 305 mm Min / 1067 mm Max
Shipping Weight	1,570 lb / 712 kg	780 lb / 354 kg	1,000 lb / 454 kg ^Δ
Input Voltage Required	—	—	120 V / 1 ph / 60 Hz
System AMP Draw	—	—	See Note [†]

* Not to be used while battery is on MWS

[†] Sump pump & float switch amp draw is approximately 1 A. Total amp draw dependant on specific power washer used and any auxiliary components plugged into unit.

^Δ With empty water tanks

Roller Wash Station

The BHS Roller Wash Station (RWS) provides a convenient location to wash electrolyte from forklift batteries while keeping battery wash water and overspray contained. The RWS comes standard with poly-sleeved rollers to easily load batteries onto the wash deck. The RWS is ideal for use with the BHS Recirculation / Neutralization System (RNS). Two models are available to choose from with either a powder-coated finish or stainless steel.

FEATURES & BENEFITS

- 11.75" (298 mm) roller height standard
- 48" (1219 mm) side panels
- 4,000 lb (1814 kg) load capacity
- Spark-proof, poly-sleeved rollers reduce corrosive build-up and extend product life
- Corrosion resistant sleeved rollers extend the life of the equipment
- Drain tray is removable for easy cleaning and has 1" (25 mm) NPT coupling
- Designed as stand-alone or for use with Recirculation / Neutralization System (RNS)

OPTIONS

14" Roller Height (RWS-3-14 / RWS-3-SS-14)

14" (356 mm) roller height to allow drain tray to be removed when used in an Operator Aboard Battery Extractor System

Fork Pocket (RWS-FP)*

Welded fork pockets for added mobility

Note: 16" (406 mm) roller height

Stainless Steel Fork Pocket (RWS-FP-SS)*

Welded fork pockets for added mobility (available on RWS-3-SS model only)

Note: 16" (406 mm) roller height

MODELS & SPECIFICATIONS

	RWS-3	RWS-3-SS
Frame Construction	Mild Steel	Stainless Steel
Drain Port Size	1" NPT / 25 mm	
Drain Tray Capacity	23 gal / 87 L (Approximate)	
Number of Rollers Inside Wash Station	16†	
Maximum Weight Capacity	4,000 lb / 1814 kg	
Overall Depth	48" / 1219 mm	
Overall Width	48" / 1219 mm	
Overall Height	60" / 1524 mm (without option RWS-FP)	
Height from Floor to Top of Roller Bed / Wash Deck	11.75" / 298 mm (without option RWS-FP)	
Shipping Weight	600 lb / 272 kg	



* Not to be used while battery is on RWS

† Units with 14" Roller Height have 12 rollers and rear friction strips.

Hardwood Wash Station

The BHS Hardwood Wash Station (HWS) provides a safe and convenient space to wash vertically extracted lift truck batteries. Contain overspray and add life to your forklift batteries by using this rugged battery maintenance equipment. The HWS is ideal for use with the BHS Recirculation / Neutralization System. Two models are available to choose from with either a powder-coated finish or stainless steel.

FEATURES & BENEFITS

- 12" (305 mm) deck height standard
- 48" (1219 mm) side panels
- 4,000 lb (1814 kg) load capacity
- Recycled, polyethylene decking is acid resistant, nonconductive, and environmentally friendly
- Drain tray is removable for easy cleaning and has 1" (25 mm) NPT coupling
- Designed as stand-alone or for use with Recirculation / Neutralization System (RNS)
- Custom-built models available to meet specifications

OPTIONS

Fork Pocket (HWS-FP)*

Welded fork pockets for added mobility

Note: 16" (406 mm) deck height

Stainless Steel Fork Pockets (HWS-FP-SS)*

Welded fork pockets for added mobility (available on HWS-3-SS model only)

Note: 16" (406 mm) deck height

MODELS & SPECIFICATIONS

	HWS-3	HWS-3-SS
Frame Construction	Mild Steel	Stainless Steel
Wash Deck Material	HDPE Poly Lumber	
Drain Port Size	1" NPT / 25 mm	
Drain Tray Capacity	23 gal / 87 L (Approximate)	
Maximum Weight Capacity	4,000 lb / 1814 kg	
Overall Depth	48" / 1219 mm	
Overall Width	48" / 1219 mm	
Overall Height	60" / 1524 mm (without option HWS-FP)	
Height from Floor to Top of Wash Deck	12" / 305 mm	
Wash Deck Area	16 ft ² / 1.5 m ²	
Shipping Weight	500 lb / 227 kg	



HWS-3



HWS-3-SS

* Not to be used while battery is on HWS

Battery Wash Cabinets

The BHS Battery Wash Cabinet (BWC) provides heavy-duty cleaning of harmful contaminants from a battery's surface, which extends the life of the battery and reduces electrical problems in lift trucks. The BWC is available in four models and is constructed with stainless steel for durability. The BWC models offer adjustable wash options and water nozzles providing efficient cleaning for various battery types. The BWC also automates the washing process, freeing staff for more productive tasks while the battery is serviced. Cleaning forklift batteries in an enclosed cabinet also reduces the likelihood of staff injury due to exposure to electrolyte spray.

FEATURES & BENEFITS

- Adjustable wash times for efficient cleaning
- Stainless steel construction offers rugged durability
- Low operating cost combined with labor-saving cleaning process saves time and money
- Adjustable legs to accommodate uneven floors (excludes BWC-1-M)
- Heavy duty door for industrial applications
- Adjustable water nozzles to accommodate various battery sizes
- Separate air/water delivery manifolds for optimum efficiency (excludes BWC-1 and BWC-1-M)
- Contact factory for other voltages and frequencies



MODELS



BWC-1

The BWC-1 is equipped with a manual door and gravity feed rollers. The BWC-1 utilizes 120 V single phase power with adjustable timer and allows batteries to drip dry. This cabinet can accommodate a range of battery sizes and is quick and easy to operate.



BWC-1-M

The BWC-1-M is equipped with a manual door and friction strips. The BWC-1-M utilizes 120 V single phase power with adjustable timer and allows batteries to drip dry. Features fork pockets for mobility (not to be used while battery is on unit). Additional features:

- Dual Oscillating Wash Manifolds
- Dual Anchor points secure equipment during transport or to permanently secure equipment inside facility
- Indicator light notifies operator when battery drip-dry time has elapsed
- 12" x 12" (305 mm x 305 mm) polycarbonate windows on top panel and upper door panel



BWC-2

The BWC-2 is equipped with an air operated automatic door and powered rollers for convenience in side-extraction applications. The powerful BWC-2 uses 240/480 V 3 ph power. Automatic air blow-off removes excess water. This heavy-duty machine works well for battery washing service providers or operations that want to quickly wash their batteries on-site.



BWC-3

The BWC-3 is built with an in-feed conveyor for overhead loading of batteries, which makes the BWC-3 the preferred model for Gantry Crane systems. This powerful battery washer uses 240/480 V 3 ph power. The BWC-3 is equipped with an automatic air blow-off and also indexes the battery onto the in-feed conveyor for unloading at the end of every cycle.

BWC-1-M-KIT

The BWC-1-M-KIT enables on-site battery washes, eliminating the time and expense required for transporting batteries to and from separate maintenance facilities. The BWC-1-M-Kit consists of three units: One clean-water tank, which includes a wash pump and an auxiliary hand-spray wand; one 330-gallon mobile tank for dirty water; and a Battery Wash Cabinet, model BWC-1-M. This modular design makes it easy for service providers to wash forklift batteries at customer facilities and cart away contaminated wastewater upon completion.

CONTENTS

- (1) Battery Wash Cabinet model BWC-1-M (battery not included)
 - Dual oscillating wash manifolds with (5) quick change water nozzles
 - Slide deck with (3) rows of poly lead rollers
 - Door open delay for battery tray drainage with timer for drip-dry
 - Electrical enclosure start circuit interface with pump
 - 120 V ac automatic sump pump in an external drain pan for easy clean-out and maintenance
 - Anchoring lugs on all four corners or can be permanently mounted to floor
- (1) 330 gal/1249 L Mobile clean water tank
 - (1) Wash Pump with 150 PSI at 5 gal/min mounted to clean water tank (not pictured)
 - (1) Auxiliary hand spray wand
- (1) 330 gal/1249 L Mobile dirty water tank



Provide Expert Service To Industrial Battery Users In Six Easy Steps:

1. Load the full clean water tank, the empty dirty water tank, and the battery wash cabinet into a transportation vehicle.
2. Transport to the customer's facility.
3. Attach both tanks to the battery wash cabinet via cam-and-groove quick connects.
4. Wash the customer's industrial batteries and collect contaminated water into the dirty water tank.*
5. Transport the full dirty water tank, the empty clean water tank, and the battery wash cabinet back to your facility.
6. Attach the dirty water tank to the WRS-2 (if installed in your facility) and begin the wastewater recycling process.†

* Some batteries may require a pre-soak agent and brushing prior to cycling through BWC-1-M.

† Water can be reused or disposed of down the drain when processed with the BHS Wastewater Recycling System (WRS).

BWC OPTIONS

Electrolyte Neutralizing Cycle (BWC-NC)

Neutralizing agent injected during wash cycle to neutralize acid residue on battery

Scrub Brush (BWC-SB)

Power scrub brush cleans underside of battery during entry and exit

Air Compressor Kit (BWC-ACK)

Provides compressed air for automatic air blow off. See below for specifications and requirements.

	BWC-1	BWC-1-M	BWC-2	BWC-3
Electrolyte Neutralizing Cycle	•		•	•
Scrub Brush			•	•
Air Compressor Kit			•	•

Optional BWC-ACK Specifications:

- 10 hp / 460 V / 3 ph / 60 Hz
- 13.8 A at 480 V
- Motor starter included
- 120 gal (454 L) vertical tank with 1" (25 mm) NPT ball valve outlet
- 34 ft³/min recover rate
- The kit includes 25' (7.62 m) of 1" (25 mm) I.D. 200 psi W.P. air hose with fittings

BWC Air Requirements:

- The BWC-2 requires 200 ft³/min at 20 seconds duration (67 ft³ required per door cycle)
- The air cylinder displacement is 1.05 x 2 (2.10 ft³ required per blow off)
- The total cubic footage required is 69 per complete cycle of the BWC-2
- A 10 hp compressor with 34 ft³/min recovery
- Net run time on the compressor per cycle is 1.97 min
- One complete wash cycle will require one complete recharge cycle from the compressor.

Cycle-Off: 120 gal (454 L) tank @ 150 psi = 160 ft³ in storage

Cycle-On: 120 gal (454 L) tank @ 90 psi = 96 ft³ in storage

64 net ft³/min available per cycle

Note: The Air Compressor Kit option is rated for dedicated use with the BWC only. Any other demands to the air system will require appropriate upsizing based on consumptions elsewhere. It is recommended that the compressor be located within close proximity of the BWC so as not to exceed 25' (7.62 m) of air line to destination. 1" (25 mm) diameter lines are the minimum recommendation for sufficient volume for blow off cycle. Any unit of smaller capacity may give unsatisfactory results.

BWC MODELS & SPECIFICATIONS

	BWC-1	BWC-1-M	BWC-2	BWC-3
Frame Construction	304/316 Stainless Steel	304/316 Stainless Steel	304/316 Stainless Steel	304/316 Stainless Steel
Air Inlet Size	N/A	N/A	0.75" NPTF	0.75" NPTF
Air Supply Required	N/A	N/A	90-110 psi @ 200 ft ³ /min Intermittent 6.2 - 7.6 bar @ 5663 L/min Intermittent	90-110 psi @ 200 ft ³ /min Intermittent 6.2 - 7.6 bar @ 5660 L/min Intermittent
Air Compressor Required (Minimum Dedicated Use)	N/A	N/A	10 HP / 120 gal Tank / 32 ft ³ /min Recovery 7.5 kW / 454 L Tank / 906 L/min Recovery	10 HP / 120 gal Tank / 32 ft ³ /min Recovery 7.5 kW / 454 L Tank / 906 L/min Recovery
Air Blow Off Cycle Time	N/A	N/A	20 s	20 s
Air Nozzle Adjustment	N/A	N/A	Angular / Multiaxis	Angular / Multiaxis
No. Air Nozzles	N/A	N/A	9	9
Water Inlet Size	0.75" NPTF	0.75" NPTF	0.75" NPTF	0.75" NPTF
Water Supply Type Required	50-80 psi @ 10 gal/min Delivery 3.5 - 5.5 bar @ 38 L/min Delivery	150-175 psi @ 5.5 gal/min Delivery 10.3-12.1 bar @ 20.8 L/min Delivery	50-80 psi @ 10 gal/min Delivery 3.5 - 5.5 bar @ 38 L/min Delivery	50-80 psi @ 10 gal/min Delivery 3.5 - 5.5 bar @ 38 L/min Delivery
Water Nozzle Adjustment	Angle & Height	Dual Oscillating Manifolds	Angle & Height	Angle & Height
No. Water Jets	8	5	8	8
Air Blow Off & Water Line	CPVC Sch 80 Pipe	CPVC Sch 80 Pipe	CPVC Sch 80 Pipe	CPVC Sch 80 Pipe
Sump Outlet Size	1" NPTF	1" NPTF	1" NPTF	1" NPTF
Drain Plug Size	1" NPTF	1" NPTF	1" NPTF	1" NPTF
Drain Basin Capacity	36 gal / 136 L	23 gal / 87 L	36 gal / 136 L	36 gal / 136 L
Conveyor Drain Basin Capacity	N/A	N/A	N/A	19 gal / 72 L
Input Voltage Required	120 V / 1 ph / 60 Hz	120 V / 1 ph / 60 Hz	240 / 480 V / 3 ph / 60 Hz	240 / 480 V / 3 ph / 60 Hz
System AMP Draw	<1 A	2.5 A	3.0 / 1.5 A	4 / 2 A
Control Voltage	24 V ac	Consult Factory*	24 V ac	24 V ac
Door Raise/Lower Mechanism	Manual - Hand Operated	Manual - Hand Operated	Dual Air Cylinders	Dual Air Cylinders
Wash Cycle Length (Variable Timer)	45 s to 99 hr	45 s to 99 hr	45 s to 99 hr	45 s to 99 hr
No. Rollers Inside Wash Cabinet	6 Non-Powered Gravity	6 Non-Powered Gravity (3 rows with 2 rollers per row)	6 Power Driven	6 Power Driven
Roller Frame Type	Rock Maple Laminate w/ Sealant	Integral, SST	Rock Maple Laminate w/ Sealant	Rock Maple Laminate w/ Sealant
No. Conveyor Rollers	N/A	N/A	N/A	6 Power Driven
Max. Weight Capacity	4,000 lb / 1814 kg	4,000 lb / 1814 kg	4,000 lb / 1814 kg	4,000 lb / 1814 kg
Overall Depth	62.5" / 1588 mm	63.5" / 1613 mm	63.75" / 1619 mm	123.75" / 3143 mm
Overall Width	58.25" / 1480 mm	61.75" / 1568 mm	62.375" / 1584 mm	70.5" / 1791 mm
Overall Height				
Door Lowered	80.125" / 2035 mm	77.75" / 1975 mm	80.125" / 2035 mm	80.125" / 2035 mm
Door Raised	123.75" / 3143 mm	99.75" / 2534 mm	108.5" / 2756 mm	108.5" / 2756 mm
Height from Floor to Top of Roller Bed	14.75 ± 0.75" 375 mm ± 19 mm	11.125" 283 mm	14.75 ± 0.75" 375 mm ± 19 mm	14.75 ± 0.75" 375 mm ± 19 mm
Battery Length	24" Min / 42" Max 610 mm Min / 1067 mm Max	24" Min / 46" Max 610 mm Min / 1168 mm Max	24" Min / 42" Max 610 mm Min / 1067 mm Max	24" Min / 42" Max 610 mm Min / 1067 mm Max
Battery Width	6" Min / 39" Max 152 mm Min / 991 mm Max	12" Min / 39" Max 305 mm Min / 991 mm Max	6" Min / 39" Max 152 mm Min / 991 mm Max	6" Min / 39" Max 152 mm Min / 991 mm Max
Battery Height	16" Min / 36" Max 406 mm Min / 914 mm Max	16" Min / 33" Max 406 mm Min / 838 mm Max	16" Min / 36" Max 406 mm Min / 914 mm Max	16" Min / 36" Max 406 mm Min / 914 mm Max

* Control voltage will depend on whether unit is used with a BHS Wastewater Recycling System (WRS) or Recirculation / Neutralization System (RNS) unit.

Recirculation / Neutralization Systems

Recirculation / Neutralization Systems (RNS) from BHS control, filter, and recirculate water used for cleaning industrial batteries. This dramatically reduces volumes of contaminated wastewater, cutting down on disposal fees.

Each model of RNS comes standard with a spray wand* connected to a 10-foot (3 meter) hose. A 120 V / 1 PH external sump pump operates automatically to return battery wash water from the wash cabinet back to the RNS. The result is a steady source of battery wash water that complies with environmental regulations and reduces overhead.

In combination with a BHS Battery Wash Cabinet, the RNS creates a closed-loop system that contains and controls the water used for cleaning industrial batteries.



RNS-1

The RNS-1 comes standard with a 125 gallon (473 L) polyethylene tank. Voltages are available in 120 V & 240 V / 1 ph or 240 V & 480 V / 3 ph / 60 Hz. This machine is fitted with fork pockets for easily relocating the unit. A handheld pH meter allows staff to monitor pH levels throughout the neutralization process.



RNS-3-SS

The RNS-3-SS comes standard with a 200 gallon (757 L) integral tank and utilizes 120 V / 1 ph / 60 Hz power. A hand-held pH meter allows staff to monitor pH levels as they return to a safe state. The RNS-3-SS features an on-demand, automatic start system. An auto-shutoff for filter service or low water level makes maintaining the system simple and easy.



RNS-4-SS

The RNS-4-SS comes standard with a 200 gallon (757 L) integral tank and utilizes 120 V / 1 ph / 60 Hz power. An automatic pH monitoring system is what makes this model the most popular in the RNS family. The system automatically shuts down for unsafe pH range while warning lights alert the operator, who can inject neutralizer with the push of a button to bring the pH back in balance.

The RNS-4-SS features an on-demand, automatic start system. An auto-shutoff for unsafe pH range, filter service, or low water level makes maintaining the system simple and easy. This ecologically friendly system also boasts a built-in ozone purification system.

FEATURES & BENEFITS

	RNS-1	RNS-3-SS	RNS-4-SS
Filters down to 5 microns	•	•	•
Easy filter replacement	•	•	•
Rotary gear pump features stainless steel internal parts for extended component life	•	•	•
Removable front panels for convenient maintenance	•	•	•
Closed loop system (when coupled with a BWC) eliminates water supply and floor drains†	•	•	•
50 psi at 12 gal/min for high-flood battery wash-down	•		
70 psi at 12 gal/min for high-flood battery wash-down		•	•
Standard fork pockets make it easy to move when clean-out is required	•		
In-line pH monitoring system aids in keeping proper pH level			•
Includes a separate handheld pH meter to assist in monitoring pH levels	•	•	
Fewest number of components in the industry lowers operating costs	•	•	•
Works with manual or automatic BHS Battery Wash Cabinets	•	•	•
On-demand, automatic start system		•	•
100-micron bag filter insert captures larger particles		•	•
Auto shut-off for pH out of safe operating range			•
Auto shut-off and indicator light for filter service	•	•	•
Auto shut-off for low water level		•	•
Adjustable timed recirculation mode for pH adjusting		•	•
Built-in ozone purification system			•

*Spray wand is not included when combined with a BHS Battery Wash Cabinet.

† Battery wastewater must be properly treated and meet all applicable environmental regulations prior to disposal.

Create a Closed Loop System

Use a Recirculation/Neutralization System (RNS) in conjunction with your Battery Wash Equipment in order to create a closed loop system where battery wash water is contained, neutralized, and recirculated for reuse by the battery wash equipment.



RNS-1 & BWC-2



RNS-4 & BWC-2



MWS-72 & RNS-1

RNS MODELS & SPECIFICATIONS

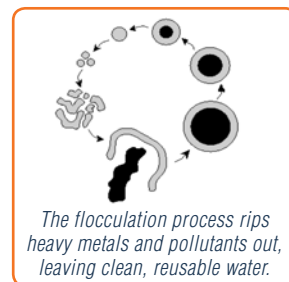
	RNS-1	RNS-3-SS	RNS-4-SS
Input Voltage	120/240 V / 1 ph / 60 Hz 240/480 V / 3 ph / 60 Hz	120 V / 1 ph / 60 Hz	120 V / 1 ph / 60 Hz
AC Current Draw	15 / 7.5 A 1 ph 4 / 2 A 3 ph	15 A	15 A
Water Pump Capacity	12 gal/min @ 50 psi 45 L/min @ 3.5 bar	12 gal/min @ 70 psi 45 L/min @ 3.8 - 4.8 bar	12 gal/min @ 70 psi 45 L/min @ 3.8 - 4.8 bar
Water Pump Motor	1.5 hp / 1.12 kW	1.5 hp / 1.12 kW	1.5 hp / 1.12 kW
Sump Pump Capacity	24 gal/min / 91 L/min	24 gal/min / 91 L/min	24 gal/min / 91 L/min
Reservoir Capacity	125 gal / 473 L	200 gal / 757 L	200 gal / 757 L
Water Outlet	0.75" NPT	0.75" NPT	0.75" NPT
Return Inlet	1" NPT	1" NPT	1" NPT
Filter Particle Size (Main/Return)	(2) 5 micron / N/A	5 micron / 100 micron	5 micron / 100 micron
Overall Width	49" / 1245 mm	42.4" / 1077 mm	42.4" / 1077 mm
Overall Length	52" / 1321 mm	48" / 1219 mm	48" / 1219 mm
Overall Height	53" / 1346 mm	48.6" / 1234 mm	48.6" / 1234 mm
Weight	500 lb / 227 kg	600 lb / 272 kg	600 lb / 272 kg
pH Metering Type	Manual - Hand Held Meter	Manual - Hand Held Meter	Automatic - Inline System
pH "Out of Limit" Cutout	-	-	Automatic
Add Water Indicator	-	-	Light
Low Water Level Cutout	-	Automatic	Automatic
High Water Level Indicator	-	-	Light
Recirculation Mode	Manual - On/Off	Timed - Adjustable	Timed - Adjustable
Neutralizing System	-	-	Manual
Ozone Purification	-	-	Automatic

Wastewater Recycling Systems

The BHS Wastewater Recycling System (WRS) is an automated, single structure, recycling system, providing on-site wastewater management. The WRS treats, filters and processes industrial wastewater to remove hazardous contaminants and particulates, ensuring that the recycled water is clean.

FUNCTIONALITY

As the WRS receives dirty wastewater, an automatic pH adjustment control is activated to raise the water to a neutral pH level of 8. The wastewater is then treated with a reactive separating agent to encapsulate the contaminants and form large flocculent. Using gravity flow, the treated water is separated from the flocculent by passing through an automatic deep bed filter. The captured sludge is conveyed to a sludge catch bin, where it dries and hardens into a non-hazardous, non-leachable sludge. The sludge is certified landfill friendly for standard trash disposal. The clean water can either be drained or held in a storage tank for reuse. This process can be performed in batches or in a closed loop system, continuously supplying clean water to a Battery Wash Cabinet (BWC).



FEATURES & BENEFITS

- Reclaims wastewater at a rate of two gallons per minute
- Automatic pH adjustment control neutralizes water for removal of hazardous materials
- Specially formulated reactive separating agent used in flocculation process removes soils, hydrocarbons, metals, etc. from wastewater
- Sludge generated is non-hazardous, non-leachable, and certified landfill friendly for standard trash disposal
- Wash water effluent micron filtered both before & after treatment
- Produces clean, reusable water
- Visual and audible alarms for operator notification on low supply of paper, flocculent, or caustic
- Alarm activation disables WRS, preventing untreated water from being output
- Ozone purification removes bacteria for odor control (Standard on WRS-1, optional on WRS-MT2)
- Independently lab tested and approved to safely process wastewater while meeting EPA and NJDEP regulations
- WRS-2-KIT includes wash station transfer pump

INDUSTRIAL APPLICATIONS

TYPES OF INDUSTRY	WASTE STREAMS
General metal working	Cutting
General metal working	Cutting and grinding oils, water soluble coolants
Metal finishing, polishing	Burnishing, vibratory, deburring effluent
Metal fabricators	Parts washer effluent
Rental and repair centers	Steam cleaning, pressure washer effluent
General industry	Mop water, compressor condensate, oils, metals and suspended solids
Painting, screening, paint coating	Inks, latex solutions
Die casting	Die lube, quench pits, machine, run-off
Plating, general manufacturing	Dissolved metals emulsified
Truck wash centers	Emulsified oil, suspended solids



Wastewater and the EPA

The EPA classifies used battery wash water as hazardous waste. According to Subtitle C of the EPA's Resource Conservation and Recovery Act (RCRA), that means generators are responsible for the safe and compliant handling of this wastewater from "cradle to grave." Releasing hazardous waste into the environment triggers serious fines and penalties for waste-generators, even if they aren't directly responsible for the improper disposal.

Consider installing a BHS Wastewater Recycling System as this high-capacity purifier processes used battery wastewater, producing RCRA-compliant water. Meanwhile, the WRS traps pollutants in a bentonite clay cake that's entirely safe for conventional disposal.

To learn more, visit our Blog and select the Wastewater category.

OPTIONS

Mobile Tank (WRS-MT)

330 gal (1249 L) Portable tank for transport of wastewater from other locations

Clean Water Holding Tank (WRS-MT2)

330 gal (1249 L) Portable tank stores clean water intended for reuse, and includes recycle module, pressurization pump, and ozone purification

Note: Option is available on WRS-2 only.

CONSUMABLES

- 50 lb (23 kg) Reactive separating agent
- 1 Bag filter
- 1 Liner filter for the sludge catch bin
- 1 Roll of filter paper
- Sodium Hydroxide (must be sourced locally)

WRS MODELS & SPECIFICATIONS

	WRS-1	WRS-2	WRS-2-KIT
Input Voltage	460 V / 3 ph / 60 Hz	120 V / 1 ph / 60 Hz	120 V / 1 ph / 60 Hz
AC Current Draw	15 A	50 A, 2 separate circuits required: (1) 20 A and (1) 30 A	50 A, 2 separate circuits required: (1) 20 A and (1) 30 A
Water Pump Capacity	75 psi / 13 gal/min	14 gal/min	14 gal/min
Water Pump Motor	1 hp	1/10 hp	1/10 hp
Sump Pump Capacity	15 gal/min	42 gal/min	42 gal/min
Reservoir Capacity	185 gal / 700 L	—	—
Water Outlet	0.75" / 19 mm	0.5" / 13 mm	0.5" / 13 mm
Return Inlet	1" / 25 mm	0.75" / 19 mm	0.75" / 19 mm
Filter Capacity	9 ft ²	9 ft ²	9 ft ²
Overall Width	51.5" / 1308 mm	48" / 1219 mm	48" / 1219 mm
Overall Length	77.5" / 1969 mm	72" / 1829 mm	72" / 1829 mm
Overall Height	89" / 2261 mm	89" / 2261 mm	89" / 2261 mm
Weight	2,100 lb / 953 kg	550 lb / 249 kg	550 lb / 249 kg
pH Metering Type	Diaphragm	Diaphragm	Diaphragm
Dirty Water Tank	—	—	330 gal / 1249 L
Clean Water Tank	—	—	330 gal / 1249 L (includes recycle module)

Forklift Battery Room Accessories Improve Safety & Comply with Regulations

Federal safety regulations specify the accessories and equipment that every battery changing area should keep on hand. BHS offers a full line of products to help you satisfy requirements and keep staff safe. Ask a BHS Representative for more detailed information on the following products:

- Eye & Safety Stations
- Personal Protective Kit
- Acid-Neutralizing Equipment
- Cleaning Kit
- Battery Room Safety Signage & More

