BHS GLOBAL, LTD.

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Battery Wash Equipment

BHS completes a battery room layout by providing solutions for all Battery Wash Equipment needs. BHS Battery Wash Equipment extends the life of batteries, reduces lift truck electrical problems, and aids in compliance with a variety of environmental requirements.

Battery Wash Equipment
Hardwood Wash Station

The BHS Hardwood Wash Station (HWS) helps keep battery wash water and over spray contained. The HWS is ideal for use with the BHS Recirculation / Neutralization System and is also available in stainless steel.

Available Models

HWS-3

HWS-3-SS

HWS-3

Features & Benefits

- 12” (305 mm) deck height standard
- 48” (1219 mm) side panels
- Drain tray has 1” (25 mm) NPT coupling
- Custom built models available to meet specifications
- Plastic decking
- Designed as stand alone or for use with Recirculation / Neutralization System (RNS)
- Removable drain tray for easy cleaning

Available 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

** Not to be used while battery is on HWS*

Product Specifications

Imperial / Metric

	HWS
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)
Max. 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-SS model only*

Battery Wash Equipment
Roller Wash Station

The BHS Roller Wash Station (RWS) helps keep battery wash water and over spray contained. The RWS comes standard with polyethylene coated rollers for corrosion resistance. The RWS is ideal for use with the BHS Recirculation / Neutralization System. The RWS is also available in stainless steel.

Features & Benefits

- 11.75" (298 mm) roller height standard
- 48" (1219 mm) side panels
- Drain tray has 1" (25 mm) NPT coupling
- RWS-3 has 2.4" (61 mm) diameter polyethylene sleeved rollers for corrosion resistance
- Deck capacity of 4,000 lb (1814 kg)
- Corrosion resistant sleeved rollers extend the life of the equipment
- Designed as stand alone or for use with Recirculation / Neutralization System (RNS)
- Removable drain tray for easy cleaning

Available Models

RWS-3

RWS-3-SS

RWS-3

Available 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

** Not to be used while battery is on RWS*

Product Specifications

Imperial / Metric

	RWS
Frame Construction	Mild Steel / Stainless Steel*
Drain Port Size	1" NPT / 25 mm
Drain Tray Capacity	23 gal / 87 L (Approximate)
No. Rollers Inside Wash Station	16
Max. 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
Shipping Weight	600 lb / 272 kg

** RWS-3-SS and RWS-3-SS-14 models only*

Battery Wash Equipment
Mobile Wash Station

The BHS Mobile Wash Station (MWS-72) is a cost effective solution for extending the life of batteries, reducing lift truck electrical problems, and is easily transportable.

Available Models

MWS-72

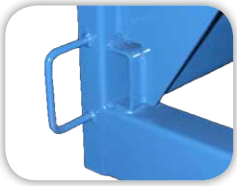
MWS-72

Features & Benefits

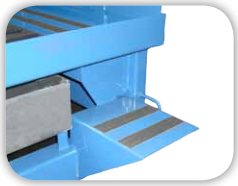
- Wide, non-skid steps and 15" (381 mm) walkway around wash deck for operator access to battery
- Removable stainless steel drain tray for easy cleaning
- Drain baffles reduce splashing
- Durable acid resistant coating
- Standard 0.75" (19 mm) brass hose connection
- Fork pockets for easy mobility*
- Anchor points secure equipment during transport
- Wash deck material is maintenance-free, recycled HDPE poly lumber

** Not to be used while battery is on MWS-72*

Fork Pockets



Anchor Points



Non Skid Steps and Walkway

Product Specifications

Imperial / Metric

	MWS-72
Frame Construction	Mild Steel
Wash Deck Material	HDPE Poly Lumber
Drain Port Size	Standard MGHT
Drain Tray Capacity	70 gal / 265 L
Max. Weight Capacity	5,000 lb / 2268 kg
Overall Depth	81" / 2057 mm
Overall Width	72" / 1829 mm
Overall Height	78" / 1981 mm
Height from Floor to Top of Wash Deck	19" / 483 mm
Wash Deck Area	41" x 56" / 1041 mm x 1422 mm
Shipping Weight	1,570 lb / 712 kg

Battery Wash Equipment
Battery Wash Cabinets

Available in three models, the BHS Battery Wash Cabinets (BWC) are constructed with stainless steel for durability. The BWC models offer adjustable wash options and water nozzles providing efficient cleaning for various battery types.

Available Models

BWC-1: Manual Door

BWC-2: Powered Rollers/Automatic Door

BWC-3: Infeed Conveyor

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
- Adjustable water nozzles to accommodate various battery sizes
- Heavy duty door for industrial applications
- Separate air/water delivery manifolds for optimum efficiency (excludes BWC-1)

Available Options

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

Air Compressor Kit (BWC-ACK)
Provides compressed air for automatic air blow off
See last page for specifications and requirements

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

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.

BWC-2

The BWC-2 is equipped with an air operated automatic door and powered rollers for convenience. The BWC-2 utilizes 240/480 V 3 ph power. Automatic air blow-off removes excess water.

BWC-3

The BWC-3 is built with an in-feed conveyor for overhead loading and utilizes 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.

Note: Contact Factory for other voltages and frequencies

Product Specifications

Imperial / Metric

	BWC-1	BWC-2	BWC-3
Frame Construction	304/316 Stainless Steel	304/316 Stainless Steel	304/316 Stainless Steel
Air Inlet Size	N/A	0.75" NPTF	0.75" NPTF
Air Supply Required	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	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	20 s	20 s
Air Nozzle Adjustment	N/A	Angular / Multiaxis	Angular / Multiaxis
No. Air Nozzles	N/A	9	9
Water Inlet Size	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	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	Angle & Height	Angle & Height
No. Water Jets	8	8	8
Air Blow Off & Water Line	CPVC Sch 80 Pipe	CPVC Sch 80 Pipe	CPVC Sch 80 Pipe
Sump Outlet Size	1" NPTF	1" NPTF	1" NPTF
Drain Plug Size	1" NPTF	1" NPTF	1" NPTF
Drain Basin Capacity	36 gal / 136 L	36 gal / 136 L	36 gal / 136 L
Conveyor Drain Basin Capacity	N/A	N/A	19 gal / 72 L
Input Voltage Required	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	1.5 / 3.0 A	2 / 4 A
Control Voltage	24 V ac	24 V ac	24 V ac
Door Raise / Lower Mechanism	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
No. Rollers Inside Wash Cabinet	6 Non-Powered Gravity	6 Power Driven	6 Power Driven
Roller Frame Type	Rock Maple Laminate w/ Sealant	Rock Maple Laminate w/ Sealant	Rock Maple Laminate w/ Sealant
No. Conveyor Rollers	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
Overall Depth	62.5" / 1588 mm	63.75" / 1619 mm	123.75" / 3143 mm
Overall Width	58.25" / 1480 mm	62.375" / 1584 mm	70.5" / 1791 mm
Overall Height	80.125" / 2035 mm Door Lowered 123.75" / 3143 mm Door Raised	80.125" / 2035 mm Door Lowered 108.5" / 2756 mm Door Raised	80.125" / 2035 mm Door Lowered 108.5" / 2756 mm Door Raised
Height from Floor to Top of Roller Bed	14.75 ± 0.75" / 375 mm ± 19 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 / 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	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 / 36" Max 406 mm Min / 914 mm Max	16" Min / 36" Max 406 mm Min / 914 mm Max

Battery Wash Equipment
Recirculation / Neutralization System

The BHS Recirculation / Neutralization System (RNS) controls, filters and recirculates water used for cleaning industrial batteries. The RNS comes standard with a spray wand with 10' hose and a 12 V dc sump pump with float switch.

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

Available Models

RNS-1
RNS-3-SS
RNS-4-SS

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.

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.

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.

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 that 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	•		
Includes a separate hand-held pH meter to assist in monitoring pH levels	•	•	
Fewest number of components in the industry lowers operating costs	•	•	•
In-line pH monitoring system aides in keeping proper pH level			•
Works with manual or automatic wash cabinets	•	•	•
On demand auto start system		•	•
100-micron bag filter insert captures larger particles		•	•
Auto shut-off for pH out of safe operating range and low water level		•*	•
Adjustable timed recirculation mode for pH adjusting		•	•
Built-in ozone purification system			•

Note: Contact Factory for other voltages and frequencies.

* *Low water only*

Product Specifications

Imperial / Metric

	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

(Continued from page 5)

Optional Battery Wash Cabinet Air Compressor Kit (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" NPT ball valve outlet
- 34 ft^3/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 ft^3/min at 20 seconds duration (67 ft^3 required per door cycle)
- The air cylinder displacement is 1.05 x 2 (2.10 ft^3 required per blow off)
- The total cubic footage required is 69 per complete cycle of the BWC-2
- A 10 hp compressor with 34 ft^3/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 ft^3 in storage
Cycle-On: 120 gal (454 L) tank @ 90 psi = 96 ft^3 in storage
64 net ft^3/min available per cycle

Note: This 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.

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