INDUSTRIAL LIFT TRUCK BATTERIES...

HOW DO YOU MANAGE THEM?

WE HAVE THE SOLUTIONS TO MATCH YOUR NEEDS!

FIVE HIGH STORAGE

PALLET JACK TRANSFER CART

HYBRID SYSTEMS

BATTERY MANAGEMENT SYSTEMS

1033 Bryn Mawr Ave., Bensenville, IL 60106, 800.323.8332
630.766.5500, fax 630.766.5631, www.sackett-systems.com

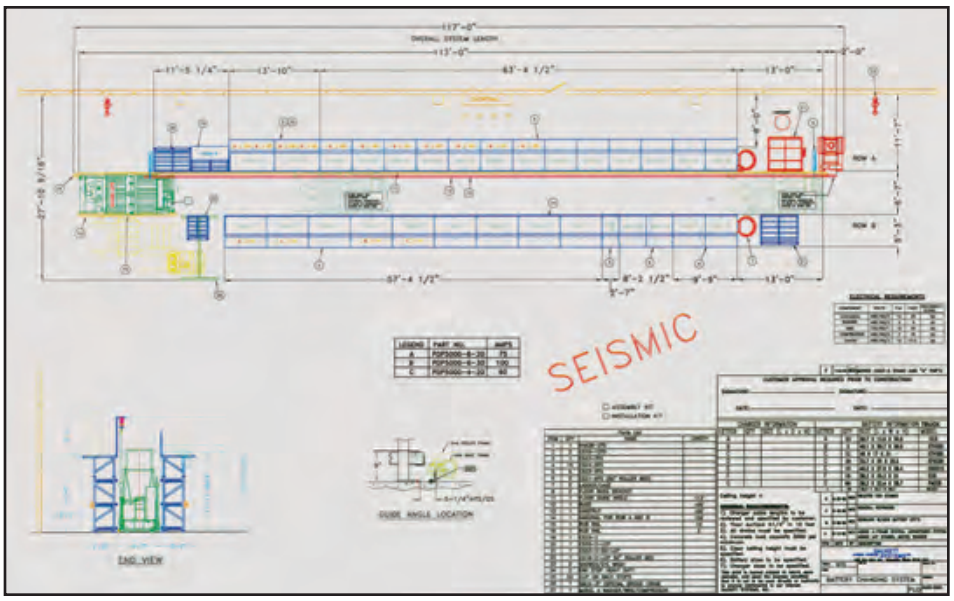
a tradition of quality since 1897
SACKETT battery handling SYSTEMS, INC

a tradition of quality since 1897

SACKETT
SYSTEMS, INC...

...is a design, engineering and manufacturing company of Battery Handling and Material Handling Equipment. In business since 1897, we have been manufacturing Battery Handling Equipment since the early 1950's.

Sackett Systems leads the industry in creating safer and more efficient battery room operations across multiple industries including: automotive, manufacturing, ratail distribution, food distribution and the food processing industries. Our current customers include: Nissan, Chrysler, U-Line, Fruit of the Loom, Coca-Cola, Toys "R" US, Starbucks Coffee and Petsmart.



Our sales consultants will evaluate your operations and determine how Sackett's solutions can make your battery changes, safer, more efficient and more reliable.

SACKETT

OSHA reg. 1910.178

Subparagraph (g) - Changing and charging storage batteries
(g) CHANGING AND CHARGING STORAGE BATTERIES

1) Battery charging installations shall be located in areas designated for that purpose.

2) Facilities shall be provided for flushing and neutralizing spilled electrolyte, for fire protection, for protecting charging apparatus from damage by trucks, and for adequate ventilation for dispersal of fumes from gassing batteries.

3) When racks are used for support of batteries, they should be made of materials nonconductive to spark generation or be coated or covered to achieve this objective.

4) A conveyer, overhead hoist, or equivalent material handling equipment shall be provided for handling batteries.

5) Reinstalled batteries shall be properly positioned and secured in the truck.

6) A carboy tilter or siphon shall be provided for handling electrolyte.

7) When charging batteries, acid shall be poured into water, water shall not be poured into acid.

8) Trucks shall be properly positioned and brake applied before attempting to change or charge batteries.

9) When charging batteries, the vent caps shall be kept in place to avoid electrolyte spray. Care shall be taken to assure that vent caps are functioning. The battery (or compartment) cover(s) shall be open to dissipate heat.

10) Smoking shall be prohibited in the charging area.

11) Precautions shall be taken to prevent open flames, sparks, or electric arcs in battery charging area.

12) Tools and other metallic objects shall be kept away from the top of uncovered batteries.

OSHA reg. 1926.403

Battery Rooms and Battery Charging
(a) GENERAL REQUIREMENTS

1) Batteries of the nonseal type shall be located in enclosures with outside vents or in well-ventilated rooms, so arranged as to prevent the escape of fumes, gases, or electrolyte spray into other areas.

2) Ventilation shall be provided to ensure diffusion of the gasses from the battery to prevent the accumulation of an explosive mixture.

3) Racks and trays shall be substantial and treated to be resistant to the electrolyte.

4) Floors shall be of acid resistant construction or be protected from acid accumulations.

5) Face shields, aprons and rubber gloves shall be provided for workmen handling acids or batteries.

6) Facilities for quick drenching of the eye and body shall be provided within 25 feet of the work area for emergency use.

7) Facilities shall be provided for flushing and neutralizing spilled electrolyte, for fire protection, for protecting charging apparatus from damage by trucks, and for adequate ventilation for dispersal of fumes from gassing batteries.

(b) CHARGING

1) Battery charging installation shall be located in areas designated for that purpose.

2) When charging batteries, the vent caps shall be kept in place to avoid electrolyte spray. Care shall be taken to assure caps are functioning.

FOR ADDITIONAL INFORMATION SEE REGULATION WEB PAGE @ WWW.OSHA.GOV/COMP-LINKS.HTML
OR THE OSHA HOME PAGE AT WWW.OSHA.GOV

BATTERY ROOM VENTILATION GUIDELINES

Ventilation requirements should be considered ideally before a charging station is built. In many cases the natural convention air movements within the area is sufficient to maintain hydrogen levels at a safe concentration.

When a lead acid battery is charged, oxygen and hydrogen gas are generated during the gassing phase (N.B. maintenance free batteries gas to a very low level as they do not have a gassing charge). If the concentration of hydrogen in the air exceeds 4% there is an explosion risk. Sufficient ventilation is therefore required to ensure that the concentration is kept to 1% or less.

The amount of hydrogen generated depends on the number and sizes of batteries being charged.

The calculation below gives the amount of gas produced and the required ventilation.

Hydrogen evolution = Start current (amps) x number of cells x 0.00019 rate (cubic meters/hr).

So for three, 75 A, 36 cell batteries, hydrogen evolution rate = 3 x 75 x 0.00019 = 1.54 cubic meters/hr. The required input air to keep the concentration below 1% is 100 x hydrogen evolution rate therefore, for 3 x 75A 36 cell minimum air flow is 154 cubic meters/hr.

The free volume of a room is calculated from height, length, width less an allowance for fixed objects. (Conversion factors 1 cubic meter = 35.314 cubic feet or 1 cubic foot = .0283 cubic meters).

If the required air flow is 200 cubic meters/hr and a room volume is 177 cubic meters/hr then natural ventilation will be sufficient, provided 200/177 or 1.13 air charges per hour.

An architect, ventilation engineer or factory inspector can advise on the air change per hour under natural ventilation. If forced ventilation is to be used all natural ventilation is ignored and an extractor fan and air inlets must be installed to provide the required air flow per hour.

HYDRA-HANDLER (HHA)

general specifications (up to 6 high)

- Stand or Floor Guide
- Up to 10,000 lbs. Capacity
- Single or Double Compartment (24", 30", 36" or 42" wide)
- Vacuum Cup Extraction (magnet optional)
- Powered Reversing Rollers in each compartment
- AC 460v-3ph-60hz
- Travel speed up to 200 fpm
- LTPC High Speed 24v Controls (travel and raise)
- Variable Carriage Lifting Speed
- Semi & Fully Automatic Battery Locator available
- Heavy Duty Rack & Pinion Drive for Extractor Arm
- All Poly Wheels to Eliminate Track on Floor
- All Functions Direct Hydraulic Powered (manual controls)
  - Forward/Reverse
  - Up/Down to 20 fpm available
  - Left/Right Extractor Arm (7 IPS)
  - Left/Right Roller Beds
- Photo Cell to Prevent HHA from Traveling when Battery is Extended Outside Roller Compartments
- Lockout, with Override Button, to Protect Extractor Arm by Preventing Travel if Arm Overhangs Vehicle
- Operator Platform
- Interlock Switch for Operator Gate
- Fleet management system
- Battery management system

DOUBLE STACKING

TRIPLE STACKING

QUAD STACKING

SINGLE STACKING

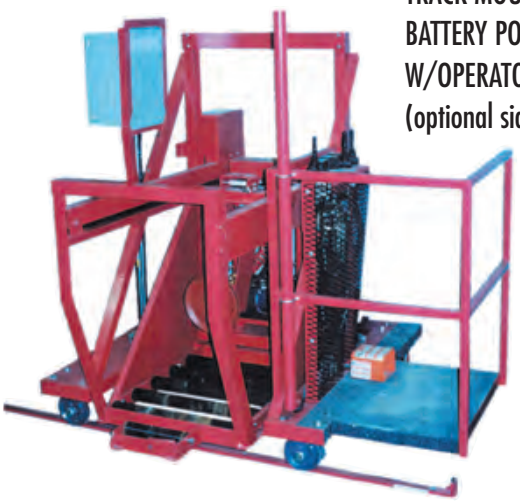
BATTERY TRANSFER CARTS

general specifications

- Capacities up to 5,000 lbs.
- Single battery compartment
- 2-3/8″ dia. roller with acid resistant non-conductive coating and sealed bearings (3 year warranty)
- Vertical roller adjustment from 6″ to 24″
- Flip-up battery stop (remote operated optional)
- 5″ composition wheels
- floor locks
- Safe, one person battery transfer
- See specification sheet for all options

BASIC TRANSFER CART
(ONE CYLINDER)

POWERED
PUSH/PULL PLATE



TRACK MOUNTED AC OR DC
BATTERY POWERED
W/OPERATOR COMPARTMENT
(optional side mount shown)

PALLET JACK MOUNTED
(DUAL LEVEL COMPARTMENT) (PJTC SERIES)

FORK MOUNTED (HEAVY DUTY) (HFT SERIES)

PALLET JACK MOUNTED
(HEAVY DUTY) (HPT SERIES)

PALLET JACK MOUNTED
(PJTC SERIES)

BATTERY STANDS

general specifications/single stacking

- All uprights on 3″ square tube with base 3-1/2″ x 2-1/2″ x 1/4″ angle iron, 1/4″ thick PE sleeve on removable roller with steel sealed bearings
- Three year warranty
- Battery safety stops
- Adjustable height plus or minus 1-1/2″
- Charger shelf
- Drip pans

general specifications/multiple stacking

- All uprights on 3″ square tube with base 3-1/2″ x 2-1/2″ x 1/4″ angle iron
- Top charging shelves
- Rollers 2-3/8″ dia. with 1/4″ thick PE sleeves
- Roller beds in all compartments
- Rollers sloped to rear to prevent roll out
- All positions are to have SB connector brackets
- Options: catwalk, ladders, drip pans
- SEISMEC construction available

MULTI STACKING STANDS

ROLLER CHARGING STAND (CS-2 SERIES)

SERVICE STAND (BSS SERIES)

POWERED TRAVELING "A" FRAME

general specifications/"A" frame

- Two ton or Three ton capacity
- Up to 20 ft. span between uprights
- 10 ft. under beam (standard)
- Hydraulic powered forward/reverse travel
- Dual wheel drive (poly wheel optional)
- 2HP power unit, 240/480v, 3ph, TEFC
- NEMA 1 enclosures
- Primed and painted finish

general specifications/Hardwood Stands

- For use with "A" frames, bridges and jib cranes
- Hardwood charging surface
- Corrosion resistance spacers
- All structural uprights 3" x 3" heavy walled square tubing
- Standard dim. 50" clear from top of wood on battery platform to underside of charging platform
- Charger platform

CABLE REEL

HOIST

TRAVELING A FRAME (PTAF SERIES)

LIFTING BEAM (B SERIES)

HARDWOOD CHARGING STAND (CS -W SERIES)

HARDWOOD TRANSFER CART (TC-W SERIES)

BATTERY WASH SYSTEM

general specifications

- Stainless steel cabinet
- Machine mounted electrical panel
- NEMA IV push buttons
- 1/2" port for in-plant water connection
- Limit switch to prevent spray with door open
- Adjustable blow off air manifold (system supplied by in-plant compressed air) operates at 90 lbs. minimum, at 150 scfm of free air
- Panel class II, UL approved
- 24 volt controls, NEC

AUTOMATIC WASH CABINET (B WITH "WRS")

MANUAL ROLLER WASH RACK WITH "WRS"

AUTOMATIC WASH CABINET WITH "WRS"

WATER RECIRCULATING SYSTEM

general specifications

- 115 gallon water holding tank
- 20 gpm, 40 psi centrifugal pressure pump
- 20 gallon return sump
- Automatic, plastic corrosion resistant sump pump
- (2) particle filters
- (1) active carbon filter
- PH indicator
- Single phase, 120 volt, 20 amp branch
- Ground fault circuit interrupter (manual wash system)
- All stainless steel framework available

options

- Auto feeding of neutralizer
- 4-way entry fork pockets
- Rear caster and lift jack handle
- Handheld scrub brush with hose
- 5 ft. long fork extension

PORTABLE MODEL "WRS"

"WRS" WATER RECIRCULATING SYSTEM

ACCESSORIES

CHARGER MONITORING SYSTEM

RD-100
REMOTE
CHARGER
DISPLAY

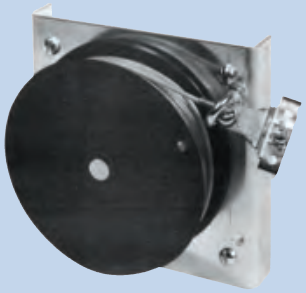
SLIDE STRIPS

REMOTE PENDANT CONTROLS FOR
(HFT SERIES) TRANSFER CART

AUTOMATIC WATERING GUN

SHOWER &
EYE WASH

POGO STICK



CHARGER
CABLE
RETRACTOR

BATTERY LOCATOR
& LEVEL SELECTOR

WATER CART

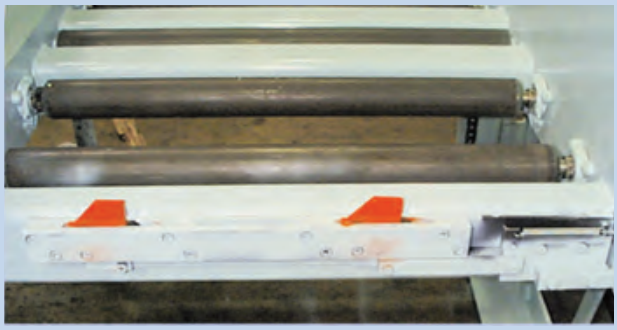
ACCESSORIES

BUSS & BRACKETS

ON BOARD WATERING SYSTEM
FOR HYDRA-HANDLERS

POWER DISTRIBUTION PANEL

TELESCOPING
EXTRACTOR ARM ON
ALL TRANSFER CARTS



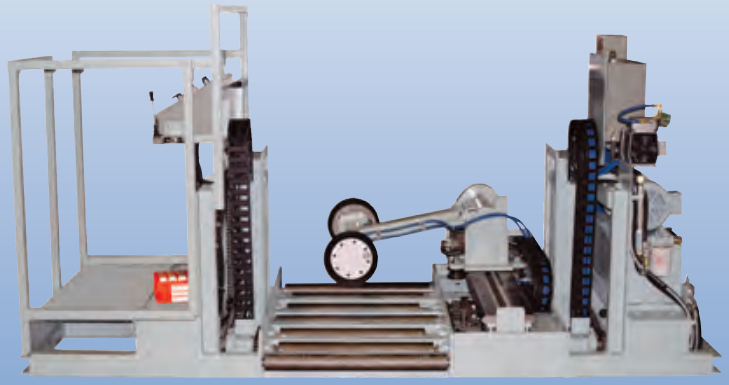
AUTOMATIC FLIP-UP
STOPS FOR
HYDRA-HANDLERS

COMPARTMENT
ROLLER
(CR SERIES)

LOW PROFILE COMPARTMENT
ROLLER (LPCR SERIES)

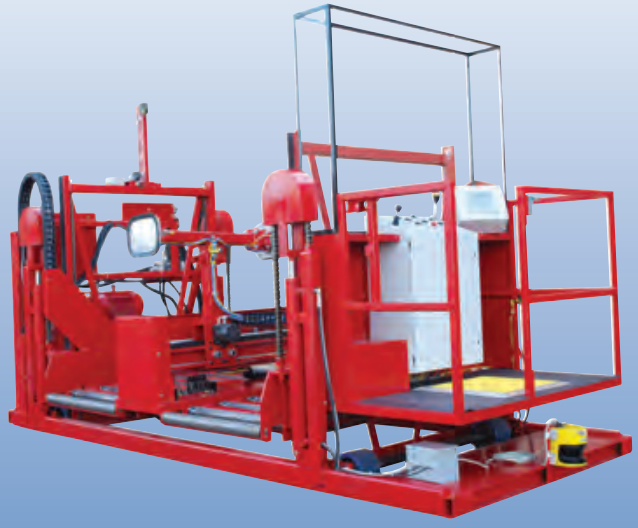
REMOVABLE POLY DRIP PANS (S.S. AVAILABLE)

SUPER XCHANGER



The SuperXchanger to be powered via AC or DC operating voltage. At a price point lower than a Single Level Hydra-Handler, the SuperXchanger is a safe, cost effective, efficiently sized, pass through battery exchange solution for customers with as many as 30 lift trucks.

CENTURION ELITE



The Centurion Elite is designed to allow forklift drivers to safely and efficiently change their own batteries. Let us show you how our Centurion Elite can deliver value to your battery room by reducing personnel, elimination equipment damage and maximizing battery life.

X-CHANGER

Our X-Changer (XTC) is a **NO INSTALLATION NECESSARY** transfer cart system designed for low volume.
The X-Changer (XTC) runs on an on-board 12vdc battery system and comes with its own charger.

FEATURES:
- 24"wide x 40" deep for max. 3000lb battery
- Push button activated hydraulic controls
- Vacuum cup extraction
- Transfer R of 6-1/2"
- Lifts to 12-1/2"
- 12volt battery and battery charger

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