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Custom Design, Engineer & Fabrication
Custom Design, Engineer & Fab.

**Design**

**Engineering Software:**
- AutoDesk Inventor
- AutoDesk AutoCAD
- AutoDesk Mechanical Simulation
- Algor AutoDesk Simulation

**Engineer**

**Engineering Staff:**
- Professional Engineering Staff
- Professional Engineers (PE)
- Mechanical Engineers (ME)
- Professional Drafters
Greenfield Products offers **design, engineer, and fabrication flexibility** by having all personnel in-house. We can use these resources to quickly take an idea from concept to completion. Many of our current products can be adapted in any way to fit your organization’s needs for material handling and lifting. Our customer’s needs lead to our future products.

All of our personnel are professionally trained and certified in their respective areas.
Container Spreaders
Greenfield Products offers a variety of bridle mounted container spreaders which are designed to be handled by a single hook crane. These container spreaders do not require any integration or power from the parent crane. The simple designs allow for automatic lock and unlock to containers corner castings.

**Ideal for:**
- Break Bulk Ports
- Ships Gear
- Lattice Boom and Crawler Cranes

The **Model LR Spreader** is an upgraded version of a Semi-Automatic Container Spreader. The innovation has led to increased production and safety in container port operations.

- 10’ - 20’ - 40’ - 45’
- Rated up to 80,000 lbs.
- Battery Powered with Radio Controls
- Replaceable battery power pack
- Power pack charge lasts through an entire shift
- Safety interlock system with position indicating light bar
- Guides/Flippers upon request
- Fork pockets for transportation
The **Model TC Spreader** is a basic semi-automatic container spreader designed to be used with a single hook crane.

- 10’ - 20’ - 40’ - 45’
- Rated up to 80,000 lbs.
- Twistlock activation via center gravity cable
- No hydraulic or electrical system required
- Double security system to avoid lifting failures
- Guides/Flippers upon request
- Fork pockets for transportation

The **Model LA-HD Spreader** is a heavy duty semi-automatic spreader. The robust frame is designed to be utilized in high-use terminals. This frame is designed with over 50% more material.

- 10’ - 20’ - 40’ - 45’
- Rated up to 80,000 lbs.
- Twistlock activation via center gravity cable
- No hydraulic or electrical system required
- Double security system to avoid lifting failures
- Guides/Flippers upon request
- Fork pockets for transportation
The **VDL CH6550 series** are quayside crane spreaders designed to handle 20-40FT/20-40-45FT ISO containers. The double girder design is structurally well proved and fully dedicated to ship to shore applications.

- Robust and reliable hydraulically powered telescoping system
- High torque single cylinder actuated corner flippers
- Memory positioning, height Detection & Twin-Twenty Detection systems available
- High reliability and maintenance friendly
- Twin motor/pump power pack unit
- Dedicated to heavy duty mobile applications
- Spreader CANopen ready
- Full electric system diagnosis
- Overload, short-circuit, wire break detection

The **VDL CH6650 Series** are crane spreaders designed to handle 20-40FT / 20-40-45FT ISO containers in Jib / Mobile Harbor Crane Applications. The double girder design is structurally well proven and made out of high quality steel in order to reduce weight. The spreaders are standard equipped with 6 high torque single cylinder actuated side flippers and available with several options.

- High torque single cylinder actuated corner flippers
- Higher torque than motor/gear version
- Gravity point adjustment tower
- With single or double shaft mounting for easy installation
- Memory positioning, height Detection & Twin-Twenty Detection systems available
The **Fully Electric Spreader** that we offer is basically an electric version of our heavy duty double girder VDL spreader.

- Reduced power consumption of up to 90% compared to hydraulic spreaders
- High reliability
- Easy maintenance and long service intervals
- No hydraulic oil on the spreader that can be spilled in the water
- High torque, electric motor actuated flippers
- Spreader CANopen ready
- Power Supply
  - 3x400 Vac / 50-60 hz or otherwise as agreed

The fully **Automated Guided Vehicles** of VDL are developed for handling 20’, 40’ and 45’ ISO containers on main port container terminals. The VDL AGV can handle loads of up to 70 tons with a maximum speed of 6 meters per second.

- Electrically driven diesel-Hybrid AGV; A small diesel engine drives a generator powering the electric motors and when peak power is required, ultra capacitors provide additional energy
- The AGV of VDL is designed in a modular way. By having a flexible design there is no need to exchange the complete vehicle after the technical lifetime of certain components
- Ability to adapt to specific customer demands with low impact
Greenfield Products offers a variety of Over Height Container Spreaders which are designed to be handled by any type of parent container spreader. These over height frames do not require any integration or power from the parent crane. The simple designs allow for seamless transitioning to any type of port equipment.

**UNIVERSAL:** Works with any type of spreader and on any type of machine.
- Fixed 20ft / Fixed 40ft or Telescopic 20 to 40t
- Variable Free Height. From 2,0m to 3,0m (Standard height = 2,7m)
- Connection to the spreader through the twist-locks of the main spreader

**Ideal for:**
- Large container terminals
- Fit any type of port equipment
- STS crane Spreaders
- Storage and transportation bases are available, but not required

The **Semi-Automatic OH Frame** works following the principles of semi-automatic spreaders: The motion of lifting / lowering of the crane opens and closes the OH Frame twist-locks.

- Includes security probes preventing the false opening / closing of the twistlocks
- Does NOT require a parking stand so it can be parked anywhere in the terminal
- Red / Green colored panels indicate the crane operator of the situation of the twist-locks
The **Direct Drive OH Frame** is the ideal choice when a solution based on a physical connection between the OH Frame and the main spreader is required.

- When the main spreader twistlocks open the OH Frame also opens; When the main spreader closes its twistlocks the OH Frame also closes
- Spreader used with the OH Frame require installation of latching plates; those latching plates can be provided or installed together with the OH Frame
- Requires a Parking Stand to engage and disengage the OH Frame from the main spreader

The **Fully Electric/Automatic OH Frame** represents today the most advanced solution in managing all kinds of oversized cargo in the port.

- FULLY AUTONOMOUS thanks to solar panels
- It requires no modification / intervention on the spreaders at the terminal
- Does NOT require a parking stand so it can be parked anywhere in the terminal
- It has a digital display of information where data are available about the use and operation of the frame such as number of cycles, sensor status, operating hours, level of battery power, etc.
- It has lighting and acoustic signals that increase worker safety
Fork Truck Container Spreaders

Manual Spreaders

The LF2020 with manual transmission offers a simple, low-cost solution to handle low volumes of containers.

As the activation of twistlocks is done by a person pulling on a chain, there is no electrical or hydraulic adaptation to the fork truck. Securing the spreader to the truck carriage is as simple as pulling a pin or disconnecting a chain. The quick removal on and off the forks retains the fork truck functionality for general purposes.

Fork Mounted Spreaders

The Model LF4040 incorporates both a strong frame with either electrical or hydraulic interlocking systems.

The proprietary ‘bevel-level’ twistlock system allows engagement of the most challenging containers. The twistlock system has rugged, individual, and mechanical interlocks on each corner.
The SW4040 is a cost-effective, 40’ fixed frame slave attachment that provides the means for an ISO spreader to handle WTP containers as needed. This preserves the original stack height of lift trucks and cranes while allowing the same equipment to handle WTP containers as needed.

The Model LT0809 WTP (wide twistlock position) beams provide a means to add WTP container handling to a standard ISO container handler.

This beam mounts under the existing parent spreader twistlocks. Once installed, the expandable heads can be extended for WTP container widths or retracted for handling standard ISO or US Domestic containers.
The quick disconnect fork frame is for use on an Empty Container Handler (ECH).

It is designed for quick attachment and removal from the empty container handler. Once attached, a Greenfield Hydraulic Chassis Picker (HCP) is used to enable container chassis stacking. The installation/removal of the frame and chassis picker does not require tools.

The EC/EH2020 spreader is designed specifically to handle 20’ tankers and ISO 20’ containers. This model features a two-point side post design with twistlock container engagement.
The **EC/EH2040** spreader is an expandable 20’ / 40’ empty container handler. This model features a two-point side post design with twistlock container engagement.
The **Model M20-45CH** is a heavy duty bomb cart designed to withstand severe use commonly associated with port and rail applications. This bomb cart offers a heavy duty suspension specifically for use with solid tires. The M20-45CH has an off road ISO container chassis that provides increased efficiency for loading and unloading operations.

The **Model M20-53R** is a heavy duty universal yard chassis designed to withstand severe use associated with rail application. This off road container chassis accommodates ISO 20-40-45’ containers and 53’ JB Hunt containers / US domestic containers. It provides increased efficiency for loading, unloading and in yard transport of containers with a reduction in chassis maintenance.
The **Model E20-45CH** is a heavy duty bomb cart designed to withstand severe use commonly associated with port and rail applications. This bomb cart offers a lighter weight suspension to be used when handling empty containers only. The E20-45CH has an off road ISO container chassis that provides increased efficiency for loading and unloading operations.

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The **Model N20-45** is for containment and transportation of leaking 20’, 40’ and 45’ containers. This unit can be transported by Hostler or Crane. The N40-45 is built with Bomb Cart standards, but also has the ability to retain over 1000CF or 7500 Gallons of liquid. Approximately the volume of a 20’ Tanker.

This unit is also available as an attachment to an existing trailer.
**Custom Bombcarts/Terminal Trailers** can be built to customer specification for unique or custom applications.

Example Options:
- Capacity
- Container Configuration
- Suspension / Tires
- Kingpin Height
- Landing Legs
- Paint

This **Drop Deck Bombcart** is designed to move over height containers around the port terminal areas. It has been engineered for safety and operator control around turns.

- Lowest CG Possible.
- Higher than standard vertical container guide walls (32”).
- Fixed Twin-20 Container Spacer.
The **Model M20-53CH** with outer container guides for transportation of 20’, 40’, 45’, 53’ and Twin-20’ ISO (96”W) and WTP (102”W) container configurations.

Payload Ratings:
- 1 – 20’ ISO Container Loaded to 67,200lbs.
- 2 – 20’ ISO Container Loaded to 67,200lbs.
- 1 – 40’ ISO Container Loaded to 67,200lbs.
- 1 – 45’ ISO Container Loaded to 67,200lbs.
- 1 – 53’ ISO Container Loaded to 67,200lbs.

The **Landing Platform** is designed to be used with ship-to-shore cranes. This platform has a robust I-Beam design which can stand up to the high volume container activity and port applications.
Break Bulk Trailers

Greenfield products will work with port operators to design Custom Cargo Transportation Systems based on our customer’s needs. Port Authorities and Stevedores can make their port of call more attractive to their customers by having a diverse line of equipment for their material handling needs.

Roll Trailers are available in customizable lengths and widths. Depending on your cargo handling requirements, we offer various options for RoRo and container port operations.

Cargo dollies can be used in tandem with terminal trailers in order to transport over-length cargo.

- Ratings up to 100 tons
- Fixed goosenecks
- Detachable goosenecks
- Corner castings
- Lashing bars
- D-Rings
- Brakes and lighting options

Roll Trailers

Custom Cargo Transportation Systems

Greenfield products will work with port operators to design Custom Cargo Transportation Systems based on our customer’s needs. Port Authorities and Stevedores can make their port of call more attractive to their customers by having a diverse line of equipment for their material handling needs.

Roll Trailers are available in combination with trailing cargo dollies have been designed to handle products with extreme lengths.
Greenfield Products **Cargo Dollies** can be designed to be used independently, or in conjunction with roll trailers. These dollies can be designed with special mounting tower to accommodate specific products.

Ratings up to 100 tons.

**Detachable Goosenecks** are carried in stock and designed to lift and tow roll trailers up to 110 metric tons payload.

- Designed for terminal tractors with hydraulic lift fifth-wheel plates with a lifting capacity of up to 36 metric tons.
- Easy hookup to tractors and roll trailers
- Can be stowed in park boxes when not in use
- Safety chains available for added safety
Spreader Chassis

Chassis designed with guide angle plates to receive a container spreader in the 20’ position.

- Available with pneumatic or solid tires
- Expanded metal decking and access ladders to allow maintenance personnel to access the spreader

Single Spreader Chassis

Intermodal Spreader Chassis

Chassis designed with guide angle plates to receive a container spreader in the 20’ position.

- Available with pneumatic or solid tires
- Equipped to receive any type of container spreader, even if it is stuck in the 40’ position
Low profile deck to handle and transport (2) Ship to Shore spreader (66,400 lbs.) with Gooseneck, king pin plate assembly and expanded metal decking.

- Pneumatic Tires or Solid Tires
- Heavy duty I-Beam Main Frame
- Dual Suspension - 2 x 25,000 lb. Suspensions / axle.
- Personnel access ladder at all sides of the trailer
- Guided outer walls to help the crane operator land the spreader
- “Open” pockets for recessed twistlock access.
- Reflective tape (DOT-C2) around entire perimeter of trailer
The integrated spreader maintenance chassis is all you will need to perform container spreader maintenance in a shop environment.

- Designed to handle and assist in maintenance of specific container spreaders
- Can be safely landed on the chassis and transported to the maintenance shop
- Includes a pneumatic lifting system, powered by shop air
- Corner castings mimic the top of all container positions, which allows user to land the spreader in the 20’, 40’ positions to replicate container landing positions
- WTP positions can be added for US Railroad Operations
- Can then be adjusted to multiple positions for trouble shooting purposes
- HMI Control stand
Our Integrated Spreader Maintenance Chassis comes equipped with the following features:

- Control Cart
- Heavy duty construction for shop environment
- Brings in 480 power and sends power / CAM Controls to the spreader
- Operate and Monitor spreader functions
- 24x20x10 is the preliminary size
- Pneumatic Valve
- Shop air will be used to hoist the spreader via pneumatic air jacks mounted to chassis
- Quick disconnects for connection of shop air and output on same side
- Cables
- Input Cable/Output cable will come out the bottom and wrap around two rungs on the back of this cart. This cart is made for this exact purpose and has the proper cable connectors
- E-stop
- On front of enclosure for easy access.
- Indicator Light
- Next to E-stop. Illuminates when system is powered up
- Disconnect Switch
- Pad lockable disconnect for safety purposes. Cuts input of 480 power
Strong Backs & Spreader Bars
Greenfield Products offers a variety of custom made strong backs and spreader bars. These strong backs can be designed to the specifications of any lift equipment and can range in capacities from 5,000lbs to loads upwards of 200,000lbs.

This section details examples of the types of equipment that Greenfield Products strong backs and spreader bars can be mounted to.

**Applications:**
- Steel Handling
- Concrete Handling
- Container Handling
- Wind Power
- Construction
- Break Bulk / General Cargo

Reach Stacker
Single Hook Crane

Overhead Crane

MAX. CAP.
60,000 LBS
Strong Backs & Spreader Bars

Gantry Crane

Fork Truck
Mobile Harbor Crane

Container Spreader

Strong Backs & Spreader Bars
The **Pneumatic Hook Spreader** utilizes any number of web-latch hook dived across two frame rows. The spreader uses compressed air to unlock the hook, which can only be unlocked when the full weight of the load has been freed from the hook. The release of the compressed air is controlled by a remote control that is usually ran by the crane operator. The spreader design reduces the labor required to load and unload ships.

- Designed to required capacity
- Up to 20 hook locations
- Dual Nitrogen Powered Tanks
- Radio control for remote unloading
- Heavy Duty landing legs
- Additional lifting lugs can be added

This **Pallet Platform** is designed to allow the bulk loading of pallets to and from a cargo ship. Pallet platforms can be engineered to the customers required size and capacity rating.

Customized spreader bars can also be provided to be used with specifically with the platforms. Twistlock mounted platforms are also available.
Our Flying Forks designed to allow any single hook crane to pick and carry pallets. Fork positions and rating can be engineered to the customers satisfaction. Both fixed forks and adjustable forks are available.

Twistlock Mounted Lifting Beams are designed to be handled by a container spreader. The container spreader can be used to handle can be used to handle a wide variety of Break Bulk materials.

- STS Crane
- Mobile Harbor Crane
- Reach Stacker
- Gantry Crane
- Top-Pick Lift Truck
Strong Backs & Spreader Bars

General Cargo Spreader Beam

The General Cargo Spreader Beam is a quick connect/disconnect heavy-duty attachment used with a container spreader.

The Spreader Beam mounts directly to a standard 20’ ISO spreader position. The Spreader Beam offers one 45 ST pick-point.

- STS Crane
- Mobile Harbor Crane
- Reach Stacker
- Gantry Crane
- Top-Pick Lift Truck

Cargo Spreader with Coil Hook

These Coil Hooks can be applied to an independent crane hook or from a container spreader attachment as shown in the associated model.

These products are designed to inserted in the center opening of the coil. Coil Hooks can be designed to any load rating per the customer application.

- Capacity
- Opening dimensions
- Shackle points
These General Cargo Spreaders can be designed and engineered to almost any length or width combination. This flexibility allows us to design the spreader to handle the specific materials you are handling.

- Windmill Components
- Super Sacks
- Steel Pipe
- Rebar
- Yachts

**General Cargo Spreader Options:**

Strong backs can be added below each of the shackle sets to provide additional lift points.

The additional Strong back provides lift points spaced for wider loads. At the center, six 22.5 ST pick-point across the middle section, and four 11.25 ST at the end beam corners.
Fork Truck Attachments

The **Chassis Picker** provides a secure means to handle chassis from the top. The unit slides into the forks of standard 28,000-30,000 lb fork trucks. Once attached to the fork truck, the picker can be used to stack chassis tire-on-tire or in a reverse nest. Various styles of pickers are used to stack challenging 20’ chassis, JBH chassis, or standard straight frame chassis.

The **HCR-4 Chassis Rotator** is a heavy-duty fork truck attachment used for bundling, un-bundling and handling container chassis. This unit slides over the forks of a standard 30,000 to 36,000 lb. fork truck. Once attached to the fork truck, the chassis rotator is used to lift, move, rotate and stack or unstack container chassis.

The HCR-4 features a rugged fixed head design at the four clamping corners and is designed for handling ISO straight framed container chassis.
Heavy duty **Coil Rams** are offered as both a fork mounted and carriage mounted option. These rams can be designed to mate with any OEM fork truck at any capacity. Our design incorporates the rams positioning so that the operator has an unobstructed view.

Split rams provide the ability to lift one large coil when the rams are positioned together, or two small coils when split rams are spread.

**Magnet Packages** eliminate the dunnage requirement between steel slabs and reduces the need for a ground person. Greenfield Products Inc. is pleased to offer a self-contained magnet package for lift trucks. Truck interfacing is minimal and flexibility is maximized. Magnet package is stored on a supplied stand. To use, insert forks in package, secure two fork pins and fit up a quick disconnect electrical connector.
Fork Truck Attachments

The **Fork Mounted 5th Wheel** hitch frame is used to move semi-trailers. The unit slides onto the forks of a non-dedicated fork truck. Securement to the truck is accomplished using chains. The unit features an air activated 5th wheel as the standard.

The **Pipe Clamping Carriage** structure features a durable purpose built design that includes main arms with secondary stabilizers. The main arms are structurally independent of each other, but hydraulically sequenced for simultaneous clamping.

The pipe clamping can be controlled using the lowering circuit that includes a flow divider which links the two arms, or the operator can lower the stabilizer arms manually.
The Fork Mounted Coil Hooks are designed to fit over the forks of a standard fork truck. They are retained to the forks using a quick connect/disconnect arrangement that enables the forks of the truck to engage the pockets of the coil hooks.

Coil clamping/un-clamping is accomplished using the fork positioning function of the truck to engage the hooks into the eye of the coil, after which the coil can be lifted and repositioned. An optional stand is available to facilitate the installation and removal of the coil hooks.

This integral mast mounted Tire Handler is specifically designed to handle the largest mining tires and wheels with or without chains. With a capacity of up to 35,000#, the TH35 features clamping arms that can be spread from a minimum of 76” to a maximum of 172”. The down sloping arms provide superior forward visibility in the tire handling position.

The TH35 is designed specifically for use on fork lift trucks. This approach optimizes the truck size to provide a short wheel base machine with excellent maneuverability.
More Port & Rail Products
This heavy duty Cone Platform provides both ergonomic and comfortable working conditions. This unit is equipped with reinforced tubular construction and high strength corner casting wear plates.

The Cone Cart promotes a viable solution that allows the workman to seamlessly move along the side of a train. The workman can either place or pull IBC’s from the rail car productively and efficiently without climbing.
The Greenfield Products 70 Ton **Production Landing Platform** is engineered to take the daily production of high volume Ship to Shore Port Operations. Durable construction and convenient transportation options make for a desirable design. The platform can be moved by any equipment with a 20’ spreader. Fore and aft containment areas are included for ballast (concrete) weight as needed. Units are also available in a 45’ version.

**External Vehicle Protection Kits** can assist in the protection of a vehicle when operating within a container terminal.

These kits are available for all standard trucks and can be ordered based on model. The kit comes fully fabricated and delivered on a skid. Some basic assemblies required on site.
Hydraulic Railcar Jacks

The intermodal, **Hydraulic Railcar Jack** has been designed, engineered and built by Greenfield Products to lift 40 ton intermodal railcars. The compact and robust design will allow users to deliver and operate the Railcar Jack even in the roughest of yard conditions. When railcar repairs need to be done there is only one jack you can trust.

Railcar Stands

Our **Railcar Stands** are engineered to be used in conjunction with our Intermodal Railcar Jack. Once the railcar has been lifted these Railcar Stands can be used to ensure the load is safely blocked. Then the required maintenance can be performed. These stands can be designed to any load rating and fork pocket dimension.
The Greenfield **Rotator Type RT 520** can come equipped with the following options:

- Capacity: 52,000 Kg. S.W.L.
- Rotation 360° endless, by means of hydraulic motor
- Possibility to select idle rotation
- Mounting: 2 point suspension
  Details to be agreed upon
- Equipped with double hook
- Weight approx. 1,800 Kg

The **Reefer Genset Transportation Trailer** is a great example of our design-engineer-manufacture process. This project was designed as a 50,000 lb. trailer or 16 reefer Gensets estimated at 16 x 3,000 lbs. = 48,000 lbs.

The trailer has 4 towers designed to mimic the mounting positions of standard ISO generators after they are loaded onto the trailer by a fork truck. This design allows for the bulk movement of Gensets to and from storage and maintenance areas.
Loading shipping containers at 90 degrees enables companies to fill 100% of a container’s volume, therefore optimizing freight efficiency. Shipping containers can be inserted either directly with a standard trailer or from above with a forklift, crane or reach stacker.

Benefits Include:
- Speed up the container loading process
- Reduce labor
- Weigh the container during loading
- Maximize operator safety
Container Unloaders

A-Ward container unloaders enable immediate unloading of shipping containers and remove expensive and scarce tilting trailers. Shipping inserted directly with a standard trailer, forklift, crane, or reach stacker.

Benefits Include:
- Maximize operator safety
- Reduce labor
- Control unloading speed by adjusting tilt angle
- Ability to unload over a longer period of time

Plastic Granules

Sugar

Grain

Ball Bearings
GREENFIELD PRODUCTS
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