

MIDLAND™

PART OF OPW FLUID TRANSFER GROUP

A DOVER™ COMPANY



GENERAL PURPOSE RAIL CAR PRODUCTS

For the Safe Loading, Transport and Unloading
of Toxic Materials



Midland's Mission

Since 1951, Midland has been dedicated to supplying the most reliable valves and level measurement devices for the railroad market. With an innovative approach to engineering simple designs that meet the most demanding needs, Midland continuously leads the way in shaping the technological evolution of railroad tank car transportation equipment that's safe, reliable and easy to use and maintain.

A Legacy of Quality

Five decades of real-world experience has resulted in a manufacturing company that anticipates the industry's needs and delivers superior products that help protect workers and the environment. This is Midland's legacy of quality. It starts with intuitive product development that answers the needs of the market without compromise, and continues through Midland's innovative engineering design process.

Precision lean manufacturing, using only the highest quality materials, is employed in a flexible, world-class production environment, assuring on-time delivery of your product. Midland's rigid quality control standards, utilizing statistical process control, promises reliable product performance. Every valve and level measurement device is thoroughly tested. After testing, critical components are serialized prior to shipping, making them easily traceable for life.

Midland is ISO 9000:2000 certified and an AAR Category F registered facility.



Quality, Safety and Support – Midland's General Purpose Rail Car Products Lead the Industry in Innovation and Reliability



Midland's innovative general purpose rail car products are engineered and manufactured for the safe and efficient loading, transport and unloading of hazardous and non-hazardous bulk products. Every component is specially designed to perform in the most demanding rail tank car applications.

Midland is also committed to reducing NARs (Non-Accidental Release of Hazardous Materials) through innovative product designs and customer training.

The difference is experience

For over 50 years, the experts at Midland Manufacturing have led the industry by providing high-quality general purpose equipment like pressure relief valves, bottom outlet valves, rupture disc devices, level measurement gages and other equipment to the railroad tank car industry. Midland is unmatched in design expertise, product offering, quality, support and dedication to customer-focused service. Most of all, specifying Midland will help give you peace of mind. Its products meet – in fact, they typically exceed – Association of American Railroads (AAR) regulations.

No matter what type of commodities you ship by rail, whether it be ethanol, sulfur, alcohol, lube oil, gasoline, asphalt, styrene, corn syrup or soybean oil, Midland has complete valve and fitting packages that are designed specifically to meet your most demanding application needs.

Value-added services and support

Midland believes that its responsibility to the customer doesn't end after the sale has been made. Dedication to customer satisfaction and responsiveness is unsurpassed, and has been a big part of its success. That's why Midland goes beyond expectations to offer additional value-added services.

- Technical and customer support teams provide continuous, knowledgeable product and application assistance throughout the long life of the product
- Cost-effective valve remanufacturing programs provide a total-life-cycle solution for valve maintenance with quick turnaround, new valve warranties, and detailed service histories on repaired valves
- Midland University enhances Midland's role of industry leadership by offering professional technical seminars that educate rail professionals and customers alike in the installation, repair and operation of its rail car products, as well as the various applications in the industries they serve

Specify Midland for quality, safety and support

Review this brochure and see what Midland has to offer. Then call **847-677-0333** or visit www.midlandmfg.net and let our experts help you specify the components that are right for all of your general purpose rail tank cars.



Learn more about NARs. Go to midlandmfg.net and follow the link to <http://nar.aar.com>

Gaging Devices



- The industry standard in providing accurate level monitoring to allow for maximum loads and prevent overloading of tank cars that are closed loaded
- Standard 3-1/4" bolt circle flange reduces space requirements, making it easier to locate other equipment on the manway plate
- Body design provides easier access to bolting
- Tack-welded chain link is provided for easy securing of cap to body
- Stainless steel cap eliminates rusting – knurled grip allows for easier loosening and tightening
- Graphite gage rod is completely sealed to improve durability and resistance to permeation from Glycol solutions
- Zinc-plated body and flange minimizes corrosion and prevents galling between body and cap of threads
- Top spring cushions float, minimizing costly repairs to floats damaged by liquid surges in the tank
- Lightweight float provides superior performance in the widest range of specific gravity applications
- Serial number is printed on the gage body, gage rod, and adjustment nut for easy identification

Lift Assisters



- Available for use with either insulated or non-insulated manway covers
- Provides lifting assistance up to 88 lbs to improve operator safety
- Powder-coated springs to prevent corrosion in harsh chemical environments
- Unique low-profile lifter design doesn't interfere with personnel on top of the car
- Self-centering design prevents pinching and damage of the manway gasket, potentially reducing NARs

Accessories



- OPW-ES Kamlok™ quick-connect fittings to speed loading and unloading operations
- Lightweight aluminum bottom outlet valve caps reduce chance of ergonomic issues while removing and installing bottom outlet caps
- A complete range of plugs, saddles, skids, caps, chains, thermowells, and air fittings are available

Call Midland today at 847-677-0333 or visit www.midlandmfg.net for more information on these and other Midland products for all of your rail tank cars.

Pressure Relief Valves

Midland offers the largest variety and range of pressure relief valves in the industry. Midland pressure relief valves are used in a wide range of applications and provide the additional security of being a re-closing pressure relief device.



- Internal and external valve designs are available in pressure ratings from 75 psig to 165 psig, and flow rates up to 35,527 scfm
- O-Ring seals are easily replaced and can be used with a diverse range of commodities to maximize the in-service life of every tank car
- All valves include wire-tamper seals with the assembler's ID number, providing traceability back to Midland, and the employee who assembled and tested the valve
- Years of knowledgeable design and testing has resulted in valves with superior reliability, maximum flow rates, repeatable set pressures, and easy maintenance
- Internal style valves provide a low profile installation and are excellent choices for non-corrosive commodities
- External valves position all of the operating parts away from the lading and are excellent choices for corrosive commodities
- Combination devices incorporate a rupture disc with a pressure relief valve, providing corrosion protection for the relief valve
- PVDF insert valves are also available for aggressively corrosive services such as HCL

Vacuum Relief Valves



- Low-cost assurance that normal vacuum conditions will not collapse or otherwise damage the tank car or tank car fittings
- Vacuum relief valves are 100% tested to assure correct operating pressures and sealing under both vacuum and positive pressure conditions
- Corrosion-resistant, stainless steel construction on sealing surfaces extends service life
- Quad seals provide positive sealing at vacuum and positive pressure
- Weather cap prevents elements from getting into the valve
- Available no-step design prevents manual operation of the valve which can cause damage to the stem and seals
- Available with seals that are compatible with a broad range of commodities such as Ethanol, Asphalt, Sulfur, Lube Oil, Styrene and Soybean Oil

Bottom Outlet Valves

Plug Style Valves

- Spring-loaded plug ensures the valve remains closed in event of an accident
- Exclusive, low-profile design eliminates the need for AAR required skids – approved for protection level A of AAR circular D.V. 2007
- O-Ring seals provide resilient sealing and improve valve performance compared to Teflon seated ball valves
- Triple-seal design on the plug provides exceptional redundant sealing for long valve service life
- A wide variety of O-Ring materials are available, including PFA encapsulated O-Rings which offer universal compatibility with most commodities, including ethanol and petroleum products
- Clean, cavity-free design prevents entrapment or isolation of media inside the valve body



Ball Style Valves

- Easy to use – valves open and close fully with only a quarter turn
- Unrestricted full port opening allows high flow rates for faster unloading
- Teflon seats provide universal compatibility with most commodities
- Special seat designs are available for highly viscous products such as Molten Sulfur

A-522 and A-520 DuraSteel Ball Valve Seats

- Better dimensional stability improves sealing in hot or cold environments
- Better dimensional stability reduces cold flow and provides longer life
- Higher seat hardness resists scratching and particle contamination
- Compatible with a broad range of commodities



Rupture Disc Devices

- Engineered and constructed to operate at pressures from 75 psi to 165 psi
- Provide reliable operation and feature heavy-duty construction to withstand the common abuse associated with the rail operating environment
- Innovative engineering enables fast, easy disc inspection and replacement in the field, saving installation time and maximizing in-service time
- Optional built-in surge protection eliminates the need for installation of secondary dampening device to protect against liquid surges in the tank
- Compatible designs are available for a broad range of commodities such as Sulfur, Caustic Soda and acid services



Midland General Purp

Reliable Quality and Innovative Design Combine to Provide

Gaging Devices

Midland Gaging Devices feature superior component engineering, resulting in the most accurate level measurement available. Graphite rods, a stainless steel cap, and zinc-plated body and flange all contribute to delivering long-term resistance to corrosion and fast, easy gage reading. The specific gravity adjustment nut allows builders to compensate for nozzle height variances. Serial numbers are attached to rods, bodies, and guide tubes for easy identification of devices.



Accessories

A complete range of car accessories is available, including thermowells, air connections, saddles, caps, plugs, nipples, OPW-ES Autolok™ quick couplers, OPW-ES quick coupling adaptors, and ergonomic helpers such as lift assisters and aluminum bottom outlet valve caps.



Bottom Outlet Valves

Midland plug, butterfly and ball style Bottom Outlet Valves are specially engineered to reduce cost, extend service life, and improve unloading times without sacrificing operator safety.



Oil Tank Car Products

Peace-of-Mind Safety in the Most Demanding Applications

Pressure Relief Valves

Both Internal and external designs are available in pressure ratings from 75 psig to 165 psig, and flow rates up to 35,527 scfm. Pressure relief valves also provide the security of re-closing after operation to minimize potential exposure of product/lading to atmosphere.



Rupture Disc Devices

Engineered and constructed to operate from 75 psi to 165 psi, Rupture Disc Devices provide reliable, fail-safe operation and feature heavy-duty construction to withstand the common abuse of day-to-day operations. Surge protection devices are also available to prevent liquid surges in the tank from damaging the rupture disc.



Vacuum Relief Valves

Provide low-cost assurance that excess vacuum will not collapse or otherwise damage a rail car. No-step designs are also available to help reduce NARs from damage caused by stepping on vacuum relief valves.

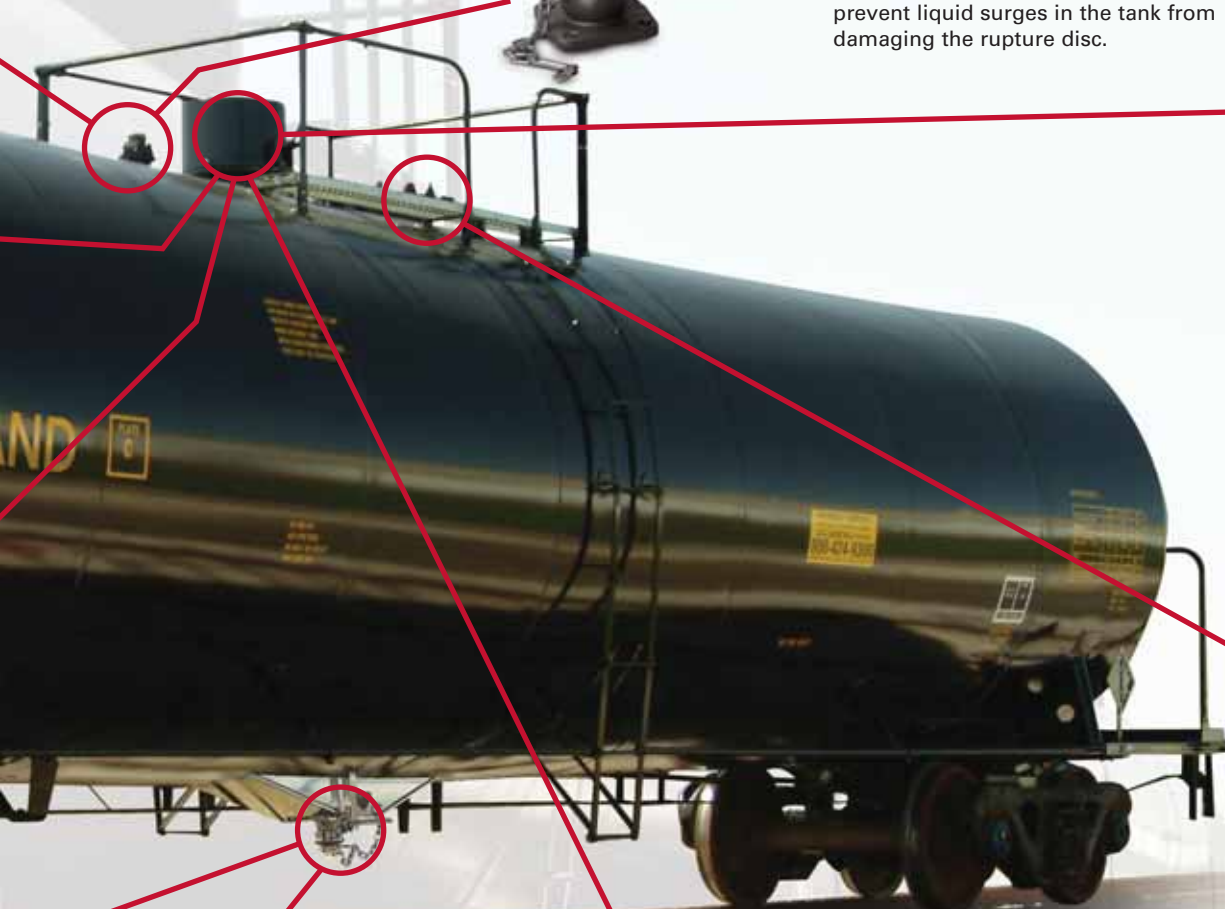


Lift Assisters

Midland Lift Assisters include powder-coated springs to prevent corrosion in harsh chemical environments, and our unique design centers the manway cover on the nozzle to reduce pinching of the manway gaskets that can result in gasket damage and NARs.

OPW ES Kamvalok® and Drylok® Valves

Used at liquid transfer points where product loss could occur, OPW Kamvaloks® and Dryloks™ provide a reliable solution to prevent spillage during connection or disconnection of loading and unloading hoses and loading arms.



OPW Fluid Transfer Group (OPWFTG), part of Dover Corporation (NYSE:DOV), is comprised of market-leading operating companies, each dedicated to designing, manufacturing and distributing world-class solutions for the safe handling and transporting of hazardous bulk products. In addition to these companies, OPWFTG has manufacturing plants in North America, Europe, Brazil and India; and sales offices in the United Kingdom, Singapore, and China.

Throughout the world, OPWFTG companies are hard at work ensuring the safe processing, loading, transporting and unloading of hazardous bulk products and safeguarding against costly petroleum and chemical spills, tank overfills and fugitive vapor emissions. Whether your need is in the chemical plant, at the terminal loading rack, or outfitting a fleet of rail tank cars, cargo tanks or dry-bulk trailers, OPWFTG systems set the standard for safety, performance and peace-of-mind assurance in the most rigorous and demanding applications. If the safe, profitable handling of hazardous liquids and dry bulk commodities such as gasoline and diesel, chlorine, chlor-alkali products, LPG, acids, cement, flour and starch, among others, is your concern, trust OPWFTG.

EXPERT SOLUTIONS FOR THE SAFE HANDLING & TRANSPORTING OF HAZARDOUS BULK PRODUCTS

	Applications	Processing	Load	Transporting		Unload
PETROLEUM	<ul style="list-style-type: none"> Gasoline Ethanol Alcohols Fuel Oil LPG 	<ul style="list-style-type: none"> Bellow Sealed Valves Sample Valves Lined Ball Valves Lined Butterfly Valves Industrial Valves ISO Rings Sight Flow Indicators Globe Valves Swivels 	<ul style="list-style-type: none"> Loading Arms Couplers Rack Monitors Dry Disconnects API Coupler Swivels 	<ul style="list-style-type: none"> Cargo Tanks Manholes Vapor Vents Electronics Internal Valves API Adaptors Sealed Parcel Pneumatic Controls Manifold Systems 	<ul style="list-style-type: none"> Rail Tank Cars Pressure Relief Valves Plug Valves Ball Valves Level Measurement Autoloks Kamvaloks Dryloks Rupture Disc Devices Angle Valves 	<ul style="list-style-type: none"> Drylok Couplers Adaptors Delivery Elbows Vapor Recovery Elbows Swivels
CHEMICALS	<ul style="list-style-type: none"> Chlorine Acids & Bases Amines Anhydrous Ammonia Propylene Butadiene Hazardous Liquids 	<ul style="list-style-type: none"> Bellow Sealed Valves Sample Valves Lined Ball Valves Lined Butterfly Valves Industrial Valves ISO Rings Sight Flow Indicators Globe Valves Swivels Dry Disconnects Quick Disconnects Epsilon 	<ul style="list-style-type: none"> Loading Arms Autoloks Kamvaloks Dryloks Loading Manholes Valves Actuators Swivels Epsilon 	<ul style="list-style-type: none"> Cargo Tanks Manholes Vapor Vents Electronics Internal Valves Sealed Parcel Epsilon 	<ul style="list-style-type: none"> Rail Tank Cars Safety Valves Plug Valves Ball Valves Level Measurement Autoloks Kamvaloks Dryloks Rupture Disc Devices Angle Valves Epsilon 	<ul style="list-style-type: none"> Loading Arms Autoloks Kamvaloks Dryloks Valves Actuators Safety Breakaways Swivels Epsilon
DRY BULK	<ul style="list-style-type: none"> Cement Flour/Starch Pharmaceuticals 	<ul style="list-style-type: none"> Industrial Valves Sight Flow Indicators Butterfly Valves Swivels 	<ul style="list-style-type: none"> Loading Arms Aerators Hatch Covers Swivels 	<ul style="list-style-type: none"> Cargo Tanks Manholes Check Valves Hopper Tees Butterfly Valves Aerators Weld Rings 	<ul style="list-style-type: none"> Rail Cars Manholes Hatches Access Ports Check Valves Hopper Tees Butterfly Valves Aerators Pressure Vacuum Valves 	<ul style="list-style-type: none"> Aerators Butterfly Valves Tank Hatches Pressure Relief Vacuum Relief Temperature Monitoring
INDUSTRIAL/GENERAL	<ul style="list-style-type: none"> Food Processing Pharmaceuticals Waste Water High-Purity Liquids Breweries Pulp and Paper Steel Processing 	<ul style="list-style-type: none"> Lined Ball Valves Lined Butterfly Valves Sample Systems Sight Flow Indicators ISO Rings Dry Disconnects Swivels Quick Disconnects High-Performance Butterfly Valves Epsilon 	<ul style="list-style-type: none"> Loading Arms Couplers Rack Monitors Swivels Dry Disconnects Quick Disconnects Butterfly Valves Epsilon 	<ul style="list-style-type: none"> Cargo Tanks Manholes Vapor Vents Electronics Weld Rings Hopper Tees Pneumatic Controls Sealed Parcel Epsilon 	<ul style="list-style-type: none"> Rail Tank Cars Safety Valves Plug Valves Ball Valves Level Measurement Autoloks Kamvaloks Dryloks Rupture Disc Devices Angle Valves Epsilon 	<ul style="list-style-type: none"> Loading Arms Couplers Rack Monitors Swivels Dry Disconnects Quick Disconnects Butterfly Valves Epsilon

Chemical & Industrial Processing Market Unit

- Food Processing
- Chemical Plants
- Petroleum Loading Stations
- Steel Processing, Pulp & Paper
- Waste Water Treatment
- Pharmaceutical
- Breweries
- High-Purity Liquids

Rail Market Unit

- Pressure & General Purpose Rail Tank Cars
- Dry Bulk Rail Cars
- Ethanol Rail Tank Cars

Cargo Tank Market Unit

- Gasoline & Diesel
- Chemical
- Dry Bulk



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