

OPW[®] FLUID TRANSFER GROUP

A **DOVER**[™] COMPANY



**Expert Solutions For The Production, Loading, Transporting
And Unloading Of Ethanol Worldwide**





FLUID TRANSFER GROUP

A DOVER COMPANY

Who We Are

OPW Fluid Transfer Group, a Dover Company, is a global operation comprised of market-leading companies dedicated to providing expert solutions for the safe handling, processing, transfer monitoring, and measuring of hazardous bulk products.

Our products and systems are used in chemical plants, refineries, petrochemical facilities, at loading racks, on rail tank cars, cargo tank transports and dry bulk trailers around the world to help safeguard personnel and the environment against costly petroleum and chemical spills, tank overfills and fugitive vapor emissions in the handling of hazardous bulk products.

Our products and systems set the industry standard worldwide for safety, performance and peace-of-mind assurance in the most rigorous and demanding applications. If the safe, profitable handling of hazardous liquids and bulk commodities is your concern and responsibility, trust OPW Fluid Transfer Group.



Safety. Performance. Assurance.



**OPW Fluid Transfer Group's
Integrated Solutions for
the Production, Loading,
Transportation, Unloading
of Ethanol.**



As the use of ethanol continues to expand worldwide, so does its role in industrial applications. Although its most visible use is as an alternative fuel, ethanol is a common component in the manufacture of everything from personal-care products like hair spray, mouthwash and perfume, to household-cleaning products, food, beverages, clothing and pharmaceuticals.

OPW Fluid Transfer Group's Dedication to the Ethanol Industry

In the United States, corn has traditionally been the feedstock of choice, thanks to its ready availability and its ability to be broken down into ethanol via traditional fermentation processes. In fact, through 2006, 93% of the ethanol produced in the U.S. was produced exclusively from corn. The remaining feedstock came

from other starch-based sources like sorghum (milo), wheat, barley, beverage waste and cheese whey.

But that is beginning to change. U.S. ethanol is manufactured through either the dry-milling (90% of production) or wet-milling process. However, a third process — cellulosic biomass processing— is gaining in popularity

with most in the industry agreeing that it will eventually become the most prevalent ethanol-production process.

Among the many sources for cellulosic biomass are sawdust, paper pulp, waste corn stalks and wheat straw. Its abundance and potential for high fuel yields gives it tremendous potential as a feedstock for ethanol production. As with grain-based ethanol, the sugars are extracted from the cellulosic feedstock for distillation into alcohol, eventually yielding ethanol that is

chemically identical to grain-produced ethanol.

Realizing the future potential of all types of ethanol and its wide array of uses, the companies of OPW Fluid Transfer Group have made a concerted effort to create products that are compatible with the processing, loading, transporting, unloading and storage of the chemical, no matter its feedstock.

So if it's sight-flow indicators and dry disconnects from OPW Engineered Systems, bottom outlet valves or over-fill protection from Midland, rack monitors and ground verification from Civacon, hatches and openings from Knappco, high-performance valves from Sure Seal, or any of a limitless array of other ethanol-compatible products, you can rest assured that the companies of OPWFTG have your best interests in mind by offering the most complete ethanol-handling solution, one that has been engineered to work as a fully integrated system. With OPWFTG's innovative component design, precision manufacturing and world-class distribution, you'll produce and transport all types of ethanol — regardless of feedstock — better, faster and safer than you ever thought possible.



Products

The following list of products referenced in the illustration to the right are used in the ethanol production process and are broken down by operating company below.



Engineered Systems

- 1 Sight Flow Indicators
- 2 Loading Arms
- 3 Swivels
- 4 Dry Disconnects
- 5 Couplers/Adaptors
- 6 Floating Suction and Roof Drains
- 7 ISO Rings



- 8 Overfill Protection
- 9 Bottom Outlet Valves
- 10 Valves - Pressure Relief, Rupture Disc



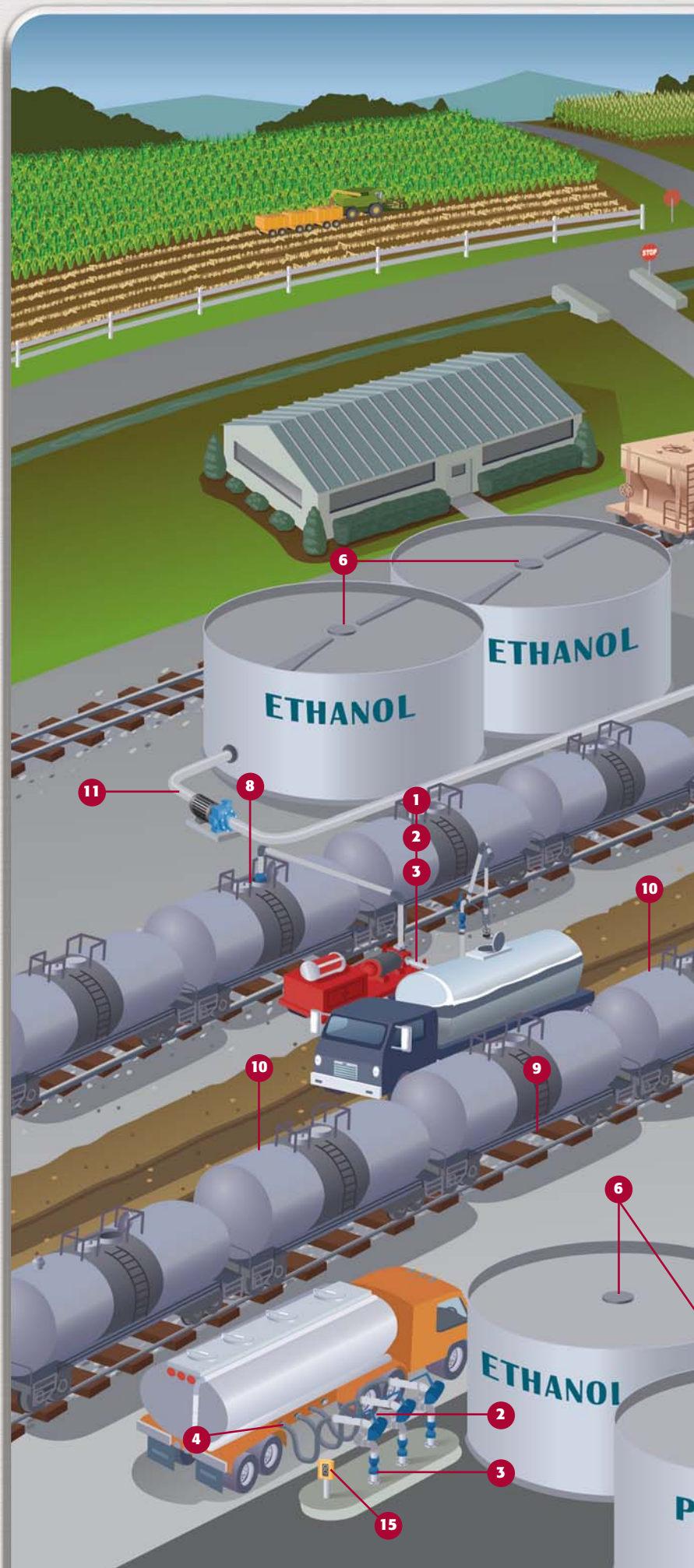
- 11 High-Performance Valves

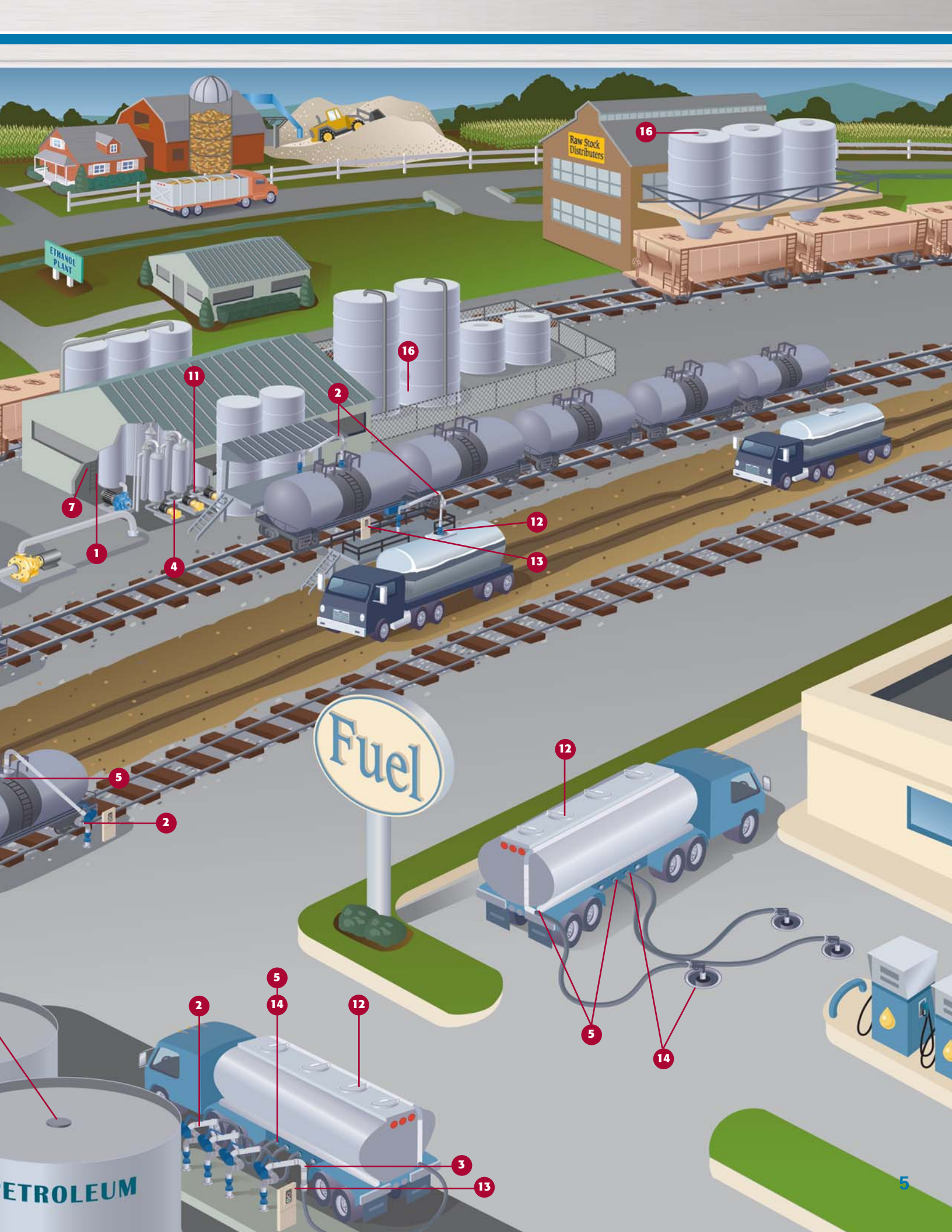


- 12 Cargo Tank Truck Overfill Protection
- 13 Rack Monitors
- 14 Bottom Loading/Unloading Equipment
- 15 Ground Verification



- 16 Hatches and Openings





ETHANOL PLANT

Raw Stock Distributors

Fuel

PETROLEUM

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OPW[®] Engineered Systems

PART OF OPW FLUID TRANSFER GROUP

For more than 60 years, OPW Engineered Systems has been the leader in systems designed to load and unload ethanol products from railcars and tank trucks. Not content to rest on its laurels, OPW Engineered Systems continues to strive to provide reliable, innovative solutions for the safe and efficient loading and unloading of ethanol, regardless of feedstock. OPW Engineered Systems' extensive line of ethanol-compatible products and systems includes loading arms, floating suction and roof-drain systems, swivel joints, sight-flow indicators, pressure measurement and monitoring instrumentation, quick and dry-disconnect systems, and safety breakaways, all of which have been designed to handle applications ranging from the simplest drum-filling operation to high-volume loading and unloading of chemicals.

- Sight-Flow Indicators
- Loading Arms
- Dry Disconnects
- Swivels
- ISO Rings
- Couplers
- Adaptors
- Floating Suction and Roof Drains

OPW ENGINEERED SYSTEMS Products-To-Applications

In-Plant Applications	Products	Benefits
<ul style="list-style-type: none"> • Cellulosic Chemical Offloading • Fermentation • Distillation • Filtration • Loading 	<ul style="list-style-type: none"> • Sight Flow Indicators • Pressure Isolation Rings • Loading Arms • Vapor Recovery • Swivels • Dry Disconnects • API Couplers • Rack Monitors 	<ul style="list-style-type: none"> • Reliable flow-rate verification • Monitor fluid color and clarity • Ensure accurate pressure readings • Isolate gauges/switches from solids • Smooth, easy operation • Enviably horizontal range • Varied drop-pipe lengths • Custom-design capabilities • CAD optimizes vapor recovery • Easy movement in any direction • Tight seals don't hinder swiveling • Avert accidental spills • Minimize fluid loss • Tight connection to truck adaptor • "Drip-less" design and construction • Can monitor many compartments • Use standard optic-signal format
Transportation Applications	Products	Benefits
<ul style="list-style-type: none"> • Cargo Tank Trucks • Rail Cars 	<ul style="list-style-type: none"> • Dry Disconnects • Quick Disconnects 	<ul style="list-style-type: none"> • Avert accidental spills • Minimize fluid loss • Prevent accidental releases • Quick and easy to use
Transloading Applications	Products	Benefits
<ul style="list-style-type: none"> • Rail-To-Truck • Skid Packs 	<ul style="list-style-type: none"> • Sight Flow Indicators • Loading Arms • Dry Disconnects • Quick Disconnects 	<ul style="list-style-type: none"> • Reliable flow-rate verification • Monitor fluid color and clarity • Smooth, easy operation • Enviably horizontal range • Varied drop-pipe lengths • Avert accidental spills • Minimize fluid loss • Prevent accidental releases • Quick and easy to use



CIVAICON™



When considering the safe handling and transport of liquids in the ethanol industry, Civacon tank-truck and transport components and systems set the standard in reliability and durability. From its trademarked System 3 total tank-truck systems to manhole assemblies, vapor valves, overfill-detection equipment, internal valves, and loading and unloading components, Civacon equipment is specified by leading tank-truck and transport builders to ensure personal and environmental safety against chemical spills, overfills and fugitive emissions. Knappco offers manholes, openings, fill covers, hatches, pressure vacuum hatches, valves and weld rings that meet the rigors of ethanol handling and storage.

- Overfill Protection
- Rack Monitors
- API Adaptors
- Ground Verification
- Bottom Loading Equipment
- Bottom Unloading Equipment
- Hatches
- Manholes

CIVAICON / KNAPPCO Products-To-Applications

In-Plant Applications	Products	Benefits
<ul style="list-style-type: none"> • Cellulosic Chemical Offloading • Wet & Dry Storage • Storage • Loading 	<ul style="list-style-type: none"> • Hatches and Openings • Overfill Protection (Rail & Cargo Tank) • API Adaptors • Ground Verification 	<ul style="list-style-type: none"> • Easy access • Highly reliable • Protects workers & environment • Helps prevent overfills • Provides peace-of-mind ease-of-use • Reduces liquid loss at connection • Reduces liquid loss at disconnection • Conform with API-RP1004 • Improved safety • Visually confirms ground connection
Transportation Applications	Products	Benefits
<ul style="list-style-type: none"> • Cargo Tank Trucks 	<ul style="list-style-type: none"> • Bottom Loading Equipment • Overfill Protection • API Adaptors • Hatches / Manholes • Ground Verification 	<ul style="list-style-type: none"> • Improves safety and accuracy • Protects workers & environment • Helps prevent overfills • Provides peace-of-mind ease-of-use • Reduces liquid loss at connection • Reduces liquid loss at disconnection • Conform with API-RP1004 • Easy access • Highly reliable • Improved safety • Visually confirms ground connection
Transloading Applications	Products	Benefits
<ul style="list-style-type: none"> • Rail-To-Truck • Skid Packs 	<ul style="list-style-type: none"> • Rack Monitors • Ground Verification • API Adaptors 	<ul style="list-style-type: none"> • Maximum control & compartment ID • Improved safety • Automatic shut-off • Improved safety • Visually confirms ground connection • Reduces liquid loss at connection • Reduces liquid loss at disconnection • Conform with API-RP1004



MIDLAND™

For a quarter-century, Midland has been working closely with ethanol producers and shippers, supplying them with the most reliable valves for the transport of ethanol by railcar. Midland's real-world experience has resulted in a manufacturing process that anticipates the ethanol industry's needs and delivers the equipment that helps keep workers and the environment safe. In addition to its industry-leading valves, Midland also offers rupture disc devices, actuator systems, level measurement gauges and other railcar equipment that can be utilized in the transportation of ethanol products, all while guaranteeing that its products meet or exceed Association of American Railroads regulations.

- Tank-Level Monitoring
- Bottom Outlet Valves
- Pressure Relief Valves
- Vacuum relief Valves
- Overfill Protection
- Rupture Disc Devices

MIDLAND Products-To-Applications

In-Plant Applications	Products	Benefits
<ul style="list-style-type: none"> • Cellulosic Chemical Offloading • Loading 	<ul style="list-style-type: none"> • Tank-Level Monitors (Rail Cars) • Bottom Outlet Valves • Pressure Relief Valves • Vacuum Relief Valves • Tank-Level Monitors 	<ul style="list-style-type: none"> • Protect workers and environment • Continuously monitor and record • Automatic liquid shut-off • High-level alarms and sensors • Lower unloading time • Reduced loading/equipment costs • Improved operator safety • Lower probability of leaks • Seals easily replaced • Compatible with many commodities • Wide range of pressure ratings • Protect against excess vacuum • Settings are factory pre-set • Protect workers and environment • Continuously monitor and record • Automatic liquid shut-off • High-level alarms and sensors
Transportation Applications	Products	Benefits
<ul style="list-style-type: none"> • RailCars 	<ul style="list-style-type: none"> • Bottom Outlet Valves • Pressure Relief Valves • Vacuum Relief Valves • Tank-Level Monitors 	<ul style="list-style-type: none"> • Lower unloading time • Reduced loading/equipment costs • Improved operator safety • Lower probability of leaks • Seals easily replaced • Compatible with many commodities • Wide range of pressure ratings • Protect against excess vacuum • Settings are factory pre-set • Protect workers and environment • Continuously monitor and record • Automatic liquid shut-off • High-level alarms and sensors
Transloading Applications	Products	Benefits
<ul style="list-style-type: none"> • Rail-To-Truck 	<ul style="list-style-type: none"> • Bottom Outlet Valves 	<ul style="list-style-type: none"> • Lower unloading time • Reduced loading/equipment costs • Improved operator safety • Lower probability of leaks



Known around the world for the quality, reliability and exceptional performance of its products, Sure Seal specializes in the design and manufacture of industrial valves and components for applications requiring the safe and efficient processing, movement, control and storage of ethanol. Specifically, Sure Seal's High-Performance Butterfly Valves are uniquely suited for all phases involved in the production and handling of ethanol. Other Sure Seal products that can be utilized in ethanol production include butterfly valves, lined ball valves, actuators, aeration systems, relief valves, hopper tees, couplers, bellows seal valves, high-purity butterfly valves, sample valves and sanitary valves.

Product Groups

- Butterfly Valves
- Ball Valves
- Relief Valves
- Bellows Seal Valves
- Sample Valves
- Sanitary Valves
- Actuators
- Aeration Systems
- Hopper Tees



SURE SEAL Products-To-Applications

In-Plant Applications	Products	Benefits
<ul style="list-style-type: none"> • Cellulosic Chemical Offloading • Storage • Fermentation • Distillation • Filtration • Loading 	<ul style="list-style-type: none"> • Actuated Valves • Manual Valves • Fire-Safe Valves • Sample Systems • Rubber Seated Valves • High-Performance Valves 	<ul style="list-style-type: none"> • High-quality fluid control • Eliminate expensive mounting kits • Allow better alignment • High-quality fluid control • Improve overall safety • Mount inside safety cabinets • Samples retrieved without flushing • Abrasion-resistant • Stay resilient and flexible • Resist external corrosion • Uninterrupted gasket surface
Transportation Applications	Products	Benefits
<ul style="list-style-type: none"> • Cargo Tank Trucks 	<ul style="list-style-type: none"> • Liquid Couplers 	<ul style="list-style-type: none"> • Corrosion-resistant • Stronger than standard aluminum • Easy to install and replace
Transloading Applications	Products	Benefits
<ul style="list-style-type: none"> • Rail-To-Truck • Skid Packs 	<ul style="list-style-type: none"> • Actuated Valves • Manual Valves • High-Performance Valves 	<ul style="list-style-type: none"> • High-quality fluid control • Eliminate expensive mounting kits • Allow better alignment • High-quality fluid control • Resist external corrosion • Uninterrupted gasket surface
Dry-Bulk Transport Applications	Products	Benefits
<ul style="list-style-type: none"> • Dry-Bulk Truck Tanks • Dry-Bulk Railcar 	<ul style="list-style-type: none"> • Aeration Systems • Hopper Tees 	<ul style="list-style-type: none"> • Allow more airflow into tank • Better vibration for faster unloading • One-person installation • Large unloading area • Reduced unloading time

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 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 Dry Disconnects 	<ul style="list-style-type: none"> Loading Arms Couplers Rack Monitors Dry Disconnects API Coupler Swivels 	Cargo Tanks <ul style="list-style-type: none"> Manholes Vapor Vents Electronics Internal Valves API Adaptors Sealed Parcel Pneumatic Controls Manifold Systems 	Rail Tank Cars <ul style="list-style-type: none"> 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 	Cargo Tanks <ul style="list-style-type: none"> Manholes Vapor Vents Electronics Internal Valves Sealed Parcel Epsilon 	Rail Tank Cars <ul style="list-style-type: none"> 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 	Cargo Tanks <ul style="list-style-type: none"> Manholes Check Valves Hopper Tees Butterfly Valves Aerators Weld Rings 	Rail Cars <ul style="list-style-type: none"> 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 	Cargo Tanks <ul style="list-style-type: none"> Manholes Vapor Vents Electronics Weld Rings Hopper Tees Pneumatic Controls Sealed Parcel Dry Disconnects Epsilon 	Rail Tank Cars <ul style="list-style-type: none"> 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
- Dry Bulk
- Ethanol



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