



Engineered Systems



LOADING SYSTEMS

OPW Engineered Systems, part of the OPW Fluid Transfer Group, provides expert solutions for the safe handling, transfer, monitoring, measuring and protection of hazardous bulk products worldwide.

Liquid Loading- Top Loading

Slide Sleeve Arm A-32-F



The slide sleeve type loading arm incorporates a slide-sleeve assembly that telescopes in and out to adjust for variations in the distance from the loading rack to the tank truck. It is used primarily in small bulk plants and terminals for top loading fuel oil or other petroleum products. This cost-effective loading arm is time-tested as a practical method of locating the drop tube accurately and easily.

Fixed Reach Style



This simple arm incorporates only three swivel planes of rotation and is designed for use in top loading installations where the vehicle is located at a fixed distance from the riser pipe. The two swivel planes at the inlet permit both up-and-down and side-to-side movement of the assembly, and the third swivel plane allows the drop pipe to remain vertical.

Valves can be located inboard or outboard to facilitate loading. With a valve located outboard, dripping of viscous products after loading can be minimized.

Scissor Style Arm



Primarily used to load and unload tank trucks where the reaches will be less than 120" (3048 mm). This versatile arm is designed specifically for top-loading installations where a variable operating range is required. The secondary arm rotates 360 degrees in the horizontal plane, providing a spotting allowance of up to twice its length.

Liquid Loading-Bottom Loading

“A-Frame” Loader



The “A”-frame is one of the more popular loading arm configurations. It provides good flexibility, long reach, and is convenient and easy to use. It adjusts for any changes in the elevation or tilting of the vehicle during loading or unloading. The arm stores neatly in the upright, near vertical position allowing it to swing around easily for loading from either side of the island.

The “A”-frame’s compact storage envelope also allows these arms to be installed relatively close together, often on risers that are approximately the same height as the vehicle connection. They can also be mounted next to one another on staggered risers to achieve arm crossover for simultaneous loading of multiple compartment trucks.

Unsupported Boom



Designed to provide flexible long-range operation, the heavy-duty unsupported boom type bottom loader configuration is both reliable and easy to use. A minimum of five swivel planes of rotation offer complete flexibility in making tight connections for loading and unloading rail cars and tank trucks. The outboard swivel and arm adjusts for any changes in elevation or tilting that may result as the vehicle is loaded or unloaded. The unsupported boom type loader is extremely versatile and many variations are possible. It can be equipped with dry disconnect coupler, union, quick coupling, or other customer specified end fitting to make connections on the side, at the rear, or underneath the vehicle.

CWH Series



Installation and operation is simple and efficient with OPW CWH Counterweighted Hose Loaders. Adjustable counterweights mounted on a pair of horizontal rails are simply moved until the desired balance point is located. This design provides for efficient handling and coupling to the tank adaptors.

This popular loader features a flange-by-flange base swivel joint for reliable performance and ease of maintenance. Construction is carbon steel with a drop hose for maximum flexibility and easy handling. Composite hose (standard) and stainless steel hoses are available.

Loading System Accessories

1004D3 API Bottom Loading Coupler



The 1004D3 is the latest generation in API Bottom Loading Couplers from OPW. A proven performer at major oil terminals around the world just got better.

5 Cam Design

Ensures easy alignment; tight connection to adaptor & resists side forces while loading

1004D4 API Bottom Loading Coupler



The 1004D4 is the next generation in API Bottom Loading Couplers from OPW. By combining ease of maintenance with a unique spring loaded sleeve design, the D4 provides the ultimate coupler experience.

5 Cam Design

Ensures easy alignment; tight connection to adaptor & resists side forces while loading

6400 Series Horizontal Valve



OPW Horizontal Loading Valves have a long-standing reputation for reliability and quality throughout the petroleum industry. This reputation is backed by more than 5 decades of successful service in the most difficult environments.

Loading Systems Accessories

Safety Breakaway Coupling



The NTS Series Safety Breakaway Coupling from OPW represents the best available technology to protect your equipment, your people and the environment. Whether you are loading tank trucks, railcars, barges or ships, with liquid or gas; the NTS is designed to separate in the event of an unintended pull-away. Non-return valves positively shut both ends preventing spills and protecting the loading station at the same time.

Angle Valve Actuator



Midland Valve Actuator Systems provide fast, automated emergency shut-off of loading and unloading valves for handling very hazardous chemicals, such as chlorine or ethylene oxide. When connected to external warning sensors such as chemical leak detectors, emergency stop switches or vibration and motion sensors, Midland Valve Actuators can immediately minimize operator exposure and EPA/DOT-reportable releases in the event of a leak in the transfer connections.

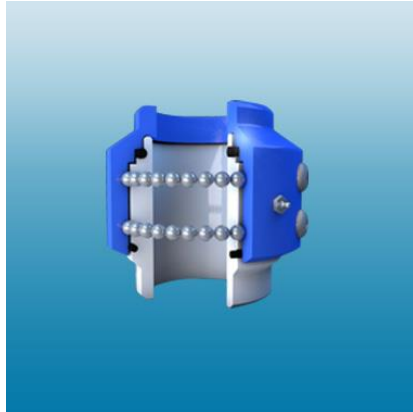
790EZ Adjust Series



The OPW 790 Series EZ Adjust Loading Arm Spring-Balance permits any one of a full range of spring balance adjustments with a simple turn of the wrench. The 790 is the ultimate user-friendly solution to spring adjustment.

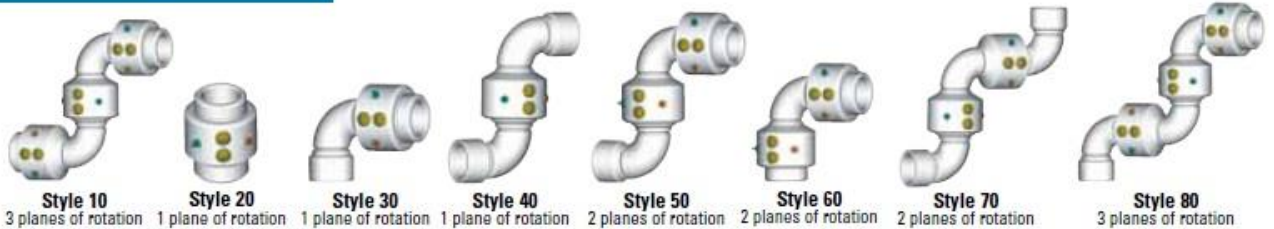
Swivel Joints

3000 Series



The industry standard for more than 70 years, OPW Engineered Systems 3000 Series Swivel Joints are available in a variety of materials, sizes and styles to meet virtually any application. Available in sizes 3/4" - 12".

ORDERING GUIDE



Style 10 3 planes of rotation **Style 20** 1 plane of rotation **Style 30** 1 plane of rotation **Style 40** 1 plane of rotation **Style 50** 2 planes of rotation **Style 60** 2 planes of rotation **Style 70** 2 planes of rotation **Style 80** 3 planes of rotation

Style (Planes of Rotation)

Style 44 is drop tube swivel w/handle. Styles 35, 45, 55 have threaded boss. Styles 56, 58, 76, 78 have spring balance attachment lugs.

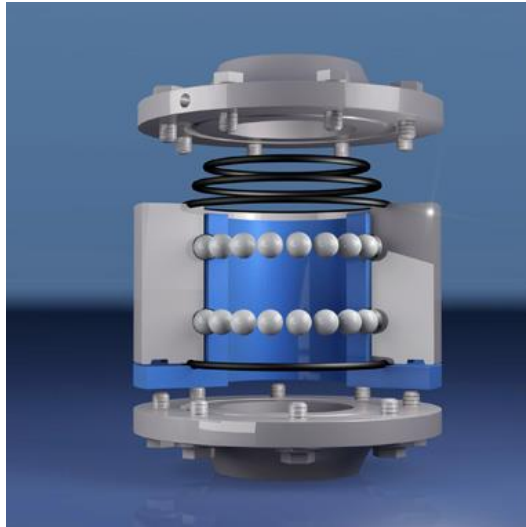
<p>Conventional Hose Reel Swivels</p> <p>26 - Aluminum Hose Reel</p> <p>28 - Ductile Iron Hose Reel</p>	<p>Conventional Swivels</p> <p>32 - Steel, High Pressure Cast</p> <p>33 - Bronze</p> <p>34 - Steel, Fabricated</p> <p>36 - Aluminum</p> <p>37 - 316 Stainless Steel, Cast</p> <p>38 - Ductile Iron</p> <p>39 - 316 Stainless Steel, Fab.</p>	<p>Endura Split Flange Swivels</p> <p>74 - Steel Endura LPG Hose Reel</p> <p>79 - 316 SST Endura LPG Hose Reel</p> <p>82 - Steel Endura DSF Single Race</p> <p>84 - Steel Endura DSF Dual Race</p> <p>87 - 316 SST Endura DSF Single Race</p> <p>89 - 316 SST Endura DSF Dual Race</p> <p>Alloy 20, Hastelloy®, Monel®, Duplex, and other materials available</p>	<p>Construction</p>	<p>3420F - 0403</p>	<p>End Connections</p> <p>F - 150 lb. ANSI flange both ends</p> <p>F3 - 300 lb. ANSI flange both ends</p> <p>FFT - 150 lb. ANSI flanged inlet x TTMA tank truck flange outlet</p> <p>FJ - For submerged use, 150 Lb. ANSI flange both ends</p> <p>FO - 150 lb. flange x female NPT threads</p> <p>FSB - 150 lb. flange both ends, with spring balance attachment lugs</p> <p>FT - TTMA tank truck flange both ends</p> <p>FTH - TTMA tank truck flange both ends, with handle</p> <p>VO - Victaulic® x female NPT threads</p> <p>FTO - TTMA tank truck flange inlet x female NPT threaded outlet</p> <p>J - For submerged use</p> <p>LFT - Long swivel joint with TTMA tank truck flanges</p> <p>TFT - Female NPT threaded inlet x TTMA tank truck flange outlet</p> <p>VOG - Female NPT threads x Victaulic® groove, hard coat anodized aluminum</p> <p>W - Beveled for welding both ends</p>	<p>Seal Materials</p> <p>1 - Buna-N (Standard)</p> <p>2 - Fluorocarbon</p> <p>3 - PTFE Silicone (FDA Approved)</p> <p>4 - EPDM</p> <p>9 - Kalrez®</p> <p>Kalrez®, Chemraz® and other seal materials available</p>	<p>Size</p> <p>007 - 3/4"</p> <p>010 - 1"</p> <p>012 - 1-1/4"</p> <p>015 - 1-1/2"</p> <p>020 - 2"</p> <p>030 - 3"</p> <p>040 - 4"</p> <p>060 - 6"</p> <p>080 - 8"</p> <p>100 - 10"</p> <p>120 - 12"</p>
--	---	--	----------------------------	----------------------------	---	--	--

NO SUFFIX LETTER indicates Female NPT threads both ends. 300 lb. flanges available on some models. BSPT threads available.

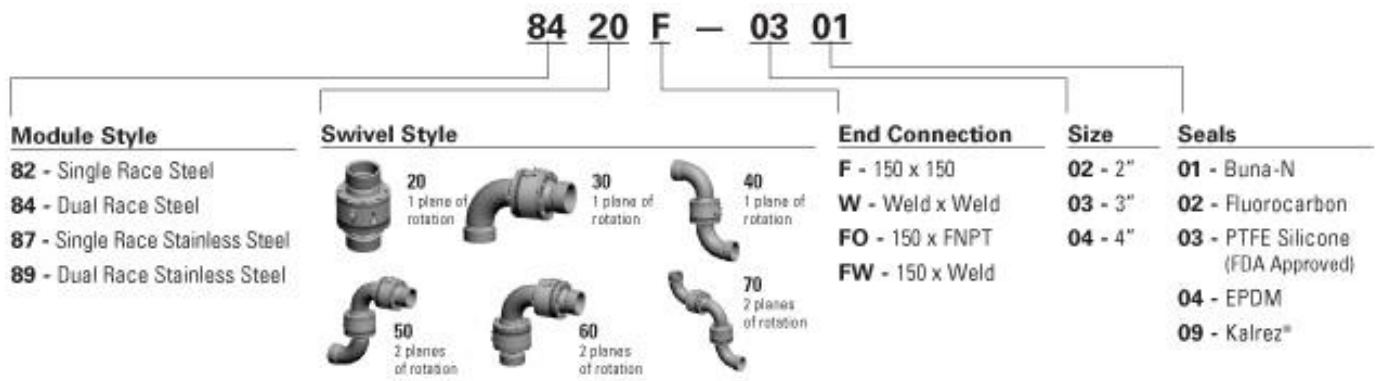
Availability of styles, sizes and materials may vary depending upon swivel configuration. Consult OPW Customer Service regarding your exact requirements.

Swivel Joints

8000 Series



The Endura™ Dual Split Flange (DSF) swivel joint from OPW® Engineered Systems represents the best in swivel technology. Specifically designed for the transfer of hazardous materials such as acids, solvents, petrochemicals and other toxic fluids, Endura™ sets the standard in Loading Arm Swivel performance. Available in sizes 2 in., 3in., and 4in.



Rack Monitors and Accessories

Opti-Therm Rack Monitors



The Civacon 8460 & 8580 Opti-Therm Rack Monitors are used to automatically recognize the type of overfill system (optic or thermistor signal technology) that is being used on a transport. When connected to the transport, the monitor checks the status of the overfill sensors. Overfill detection systems such as the 8460 & 8580 provide automatic warning of product overfill detection and warn of a pending overfill condition.

Model 8030 Ground Verification Monitors



When it comes to safety and peace of mind you must be grounded. Believing that you have a ground while loading your transport at the terminal sometimes isn't enough — Civacon's new 8030 Ground Verification Monitor visually confirms a ground connection between the transport and the loading terminal.

Plugs and Cords



Safety, reliability, corrosion resistance and long product-cycle life are benefits of the Civacon Optic and Thermistor Plug & Cord sets for your terminal loading systems.

Bulk Plant Valves

Gate Valve-Threaded, Brass- Figure 235



Rising stem gate valve used for manual flow control in petro-chemical liquid handling.

This valve operates by rotating a powder coated hand wheel counter clockwise to open or clockwise to close. Valve can be left partially open to control flow rate. Available in 1 ½ "-3".

Locking Gate Valve-Threaded, Ductile Iron- Figure 235BDI



Rising stem gate valve used for manual flow control in petro-chemical liquid handling.

This valve operates by rotating a powder coated hand wheel counter clockwise to open or clockwise to close. Valve can be left partially open to control flow rate. Available in 1 ½ "-3".

Locking Gate Valve-Flanged, Ductile Iron- Figure 234BDI



Rising stem gate valve used for manual flow control in petro-chemical liquid handling.

This valve operates by rotating a powder coated hand wheel counter clockwise to open or clockwise to close. Valve can be left partially open to control flow rate. Available in 1 ½ "-3".

Gate Valve-Flanged, Ductile Iron- Figure 234DI



Rising stem gate valve used for manual flow control in petro-chemical liquid handling.

This valve operates by rotating a powder coated hand wheel counter clockwise to open or clockwise to close. Valve can be left partially open to control flow rate. Available in 1 ½ "-3".

Bulk Plant Valves

Flanged Gate Valve with Expansion Relief-Ductile Iron

Figure 534DI/534BDI



Rising stem gate valve used for manual flow control in petro-chemical liquid handling. Available in brass and ductile iron. Teflon® fitted is an option for brass, standard for ductile. Available in 2" and 3" only.

Threaded Gate Valve with Expansion Relief-Brass

Figure 535/535B



Rising stem gate valve used for manual flow control in petro-chemical liquid handling. Available in brass and ductile iron. Teflon® fitted is an option for brass, standard for ductile. Available in 2" and 3" only.

Threaded Gate Valve with Expansion Relief- Ductile Iron

Figure 535DI/535BDI



Rising stem gate valve used for manual flow control in petro-chemical liquid handling. Available in brass and ductile iron. Teflon® fitted is an option for brass, standard for ductile. Available in 2" and 3" only.

Bulk Plant Valves

Swing Check Valve-Threaded Brass 246A



Used for single-direction flow in a horizontal pipeline and/or to isolate product in a multi-product handling system. Poppet and seats are metal and may allow some seepage over long periods of time. Expansion relief is available. Available in 1 ½" – 3".

Swing Check Valve-Threaded Ductile Iron 246ADI



Used for single-direction flow in a horizontal pipeline and/or to isolate product in a multi-product handling system. Poppet and seats are metal and may allow some seepage over long periods of time. Expansion relief is available. Available in 2" and 3".

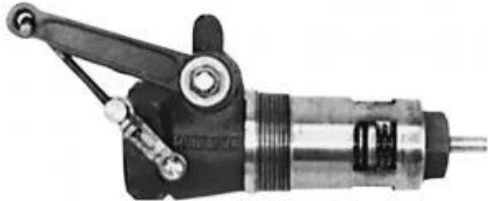
Swing Check Valve-Flanged, Ductile Iron 246DRF



Used for single-direction flow in a horizontal pipeline and/or to isolate product in a multi-product handling system. Poppet and seats are metal and may allow some seepage over long periods of time. Expansion relief is available. Available in 3" and 4".

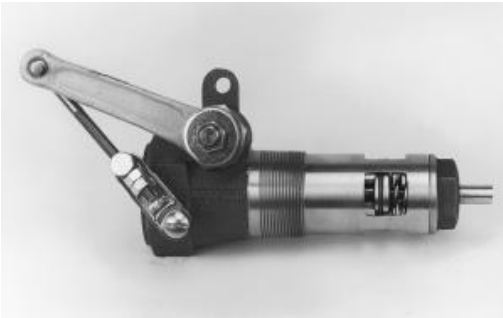
Bulk Plant Valves

Internal Emergency Valve-Threaded Brass 272HO



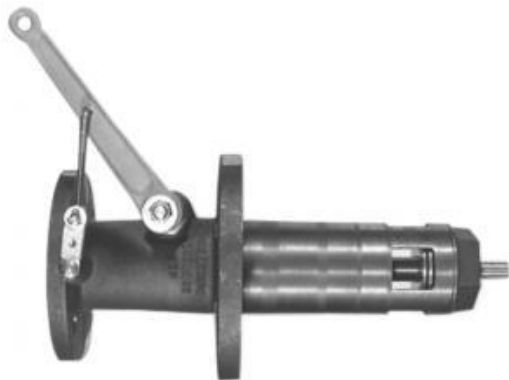
Often referred to as a "fire valve." Used to shut off flow in the event of fire. Fusible link holds open spring actuated lever. Body mounts at the base of an aboveground tank with plunger end projecting inside the tank, thus the designation "internal." Available in 2"-4".

Internal Emergency Valve- Locking, Ductile Iron 272HDL



Often referred to as a "fire valve." Used to shut off flow in the event of fire. Fusible link holds open spring actuated lever. Body mounts at the base of an aboveground tank with plunger end projecting inside the tank, thus the designation "internal." Available in 2"-4".

Internal Emergency Valve- Flanged, Ductile Iron 272DI



Often referred to as a "fire valve." Used to shut off flow in the event of fire. Fusible link holds open spring actuated lever. Body mounts at the base of an aboveground tank with plunger end projecting inside the tank, thus the designation "internal." Available in 4" x 3" and 6" x 4".

Bulk Plant Valves

External Emergency Valve- Ductile Iron

346DI



Often referred to as a "fire valve." Used to shut off flow in the event of fire. Fusible link holds open spring actuated lever. Mounts on external pipeline, thus the designation "external." 200 PSI WOG. Available in 1 ½" -3".

External Emergency Valve-Flanged, Ductile Iron

346FDI



Often referred to as a "fire valve." Used to shut off flow in the event of fire. Fusible link holds open spring actuated lever. Mounts on external pipeline, thus the designation "external." 200 PSI WOG. Available in 2"-4".

External Emergency Valve- Stainless Steel

346SS



Often referred to as a "fire valve." Used to shut off flow in the event of fire. Fusible link holds open spring actuated lever. Mounts on external pipeline, thus the designation "external." 200 PSI WOG. Available 1 ½" and 2".

Sight Flow Indicators

1400 Series



1400 Series VISI-FLO® are designed for applications with a maximum operating pressure of 200 PSIG and/or temperature of 225F (107C). Available in ¾" -4". Threaded and flanged.

1500 Series



1500 Series VISI-FLO® are designed for applications with a maximum operating pressure of up to 400 PSIG and/or temperatures up to 350F (177C)*. Available in ¾"-4". Threaded and flanged.

* *Special high temperature seals are available; consult factory for details.*

1600 OEM Series



OPW 1600 Series Sight Flow Indicators are manufactured of quality materials and safety tested to assure long, dependable service at economical prices. Good for monitoring critical fluid flow, lubricants, coolant lines and sprinkler systems. Available in 1/8"-2" threaded.