



Loading Arms

Swivel Joints

Floating Suctions

Access Gangways

Flow Meters

Grounding Monitors

Couplings and Breakaways



TECNOLOGIA EM MANUSEIO DE LÍQUIDOS

REDLANDS

Redlands

Redlands do Brasil Eireli has over 30 years of experience and technology in the transferring, handling, and measuring of liquids and gases. Redlands' equipment is found in industries such as petroleum, petrochemicals, chemicals, food products, in fact, in any market segment where the handling of liquids and gases is critical.

We have seven basic product lines: loading arms, swivel joints, floating suctions, access gangways, flow meters, grounding monitors and specialized couplings.

Through our technical assistance department, we offer preventive and corrective maintenance services. Our technicians are factory trained to solve and prevent maintenance problems in general, minimizing downtime that can be extremely costly. Using our equipment and services, you will not only have reduced costs associated with product losses and greater speed in loading or unloading processes, but also make your liquid or gas transfer operations **safer, cleaner and more environmentally friendly**.



Our Vision:

To offer the best solution for liquid transfer for the markets of petroleum, petrochemicals, chemicals and industry in general.

Offering the best solution means providing the best technical solution, the best product quality, and primarily, the best pre-sales, delivery and after-sales service, exceeding our customers' expectations and thereby building long-lasting relationships.

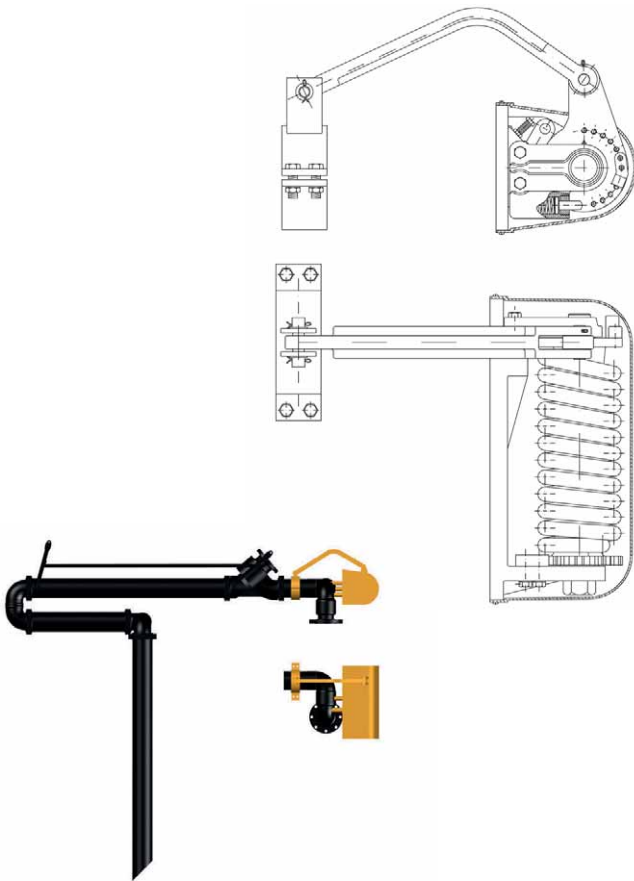
Loading Arms

Redlands has the most complete range of equipment and accessories for the loading and unloading of tank trucks, railroad wagons, ships, barges, etc. and is prepared to fulfill the requirements of your most diverse applications.

We deliver the most innovative solutions, developing loading arm systems for petroleum products and other aggressive chemicals requiring loading/unloading systems that adequately meet the strict safety standards for the handling of chemical, corrosive or toxic fluids.

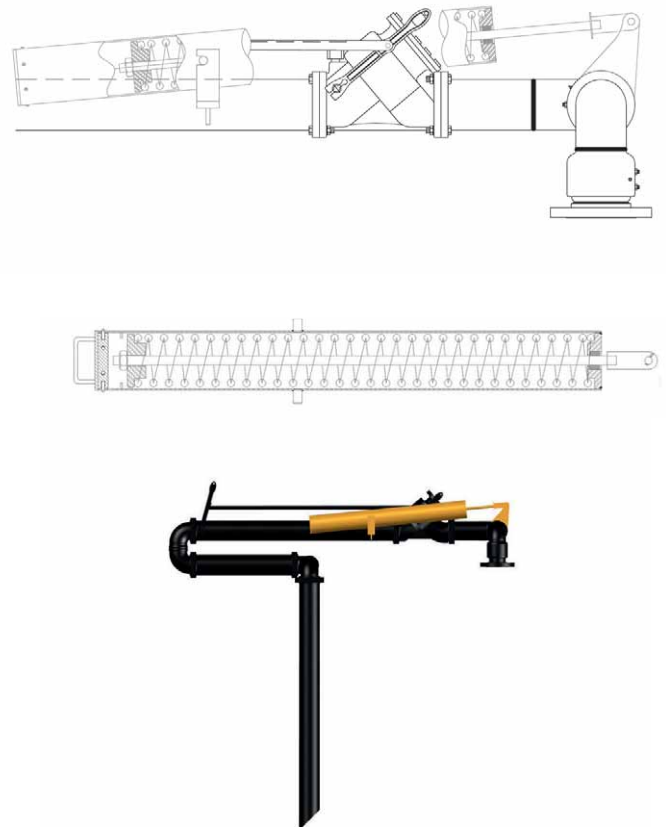
Below are some typical layouts for Redlands loading arms. For more detailed technical information or for the development of specific layouts, please contact our technical department or visit our website. We're sure we'll find the best solution for your application.

Torsion



Loading arms counterbalanced with torsion springs allow for adjustments and assure safe and easy refueling. It consists of a solid and compact set, and can be mounted directly on the base of the swivel joint. This model is particularly suitable where maximum free area around the arm is required.

Compression

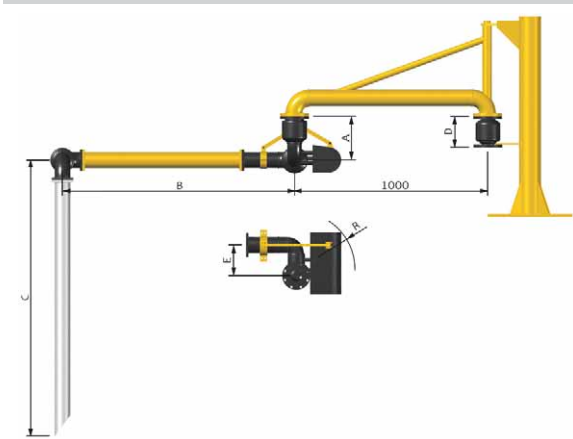


Loading arms counterbalanced with compression springs allow for easy adjustments and significant gains in space on platforms requiring complete clearance of the base swivel joint.

Top Loading Arms

This is a versatile arm, typically used in installations where vehicles are loaded from above. Composed of swivel joints (360° rotation) to provide better mobility and designed to cover a larger sweeping range of compartments. This arm is an excellent choice for loading tank trucks and/or railroad wagons with several chambers or compartments.

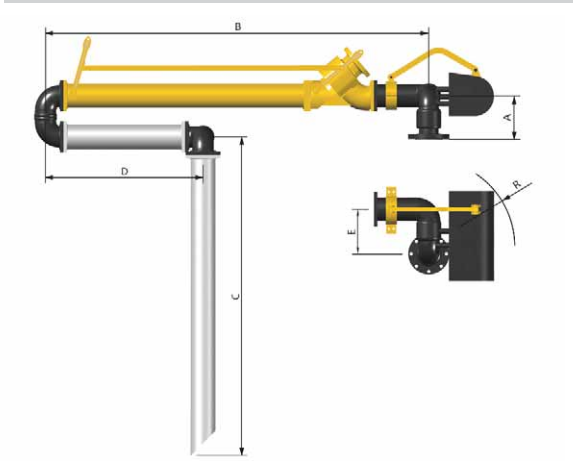
B Type



Typical dimensions (mm)

Φ	A	B	C	D	E	R
3"	235	3048	2184	205	273	437
4"	259	3048	2210	211	335	500

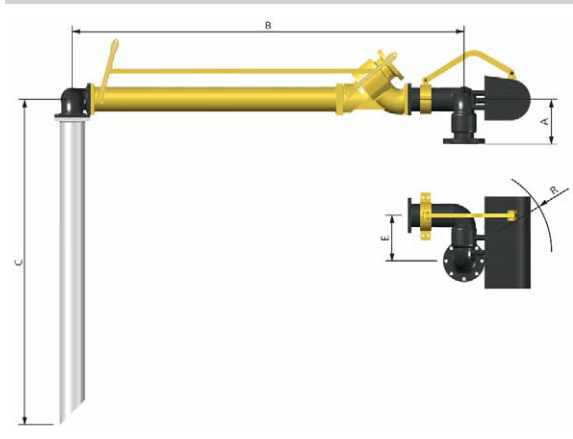
C Type



Typical dimensions (mm)

Φ	A	B	C	D	E	R
3"	235	2134	1041	610	273	437
4"	259	2438	1524	914	335	500

E Type



Typical dimensions (mm)

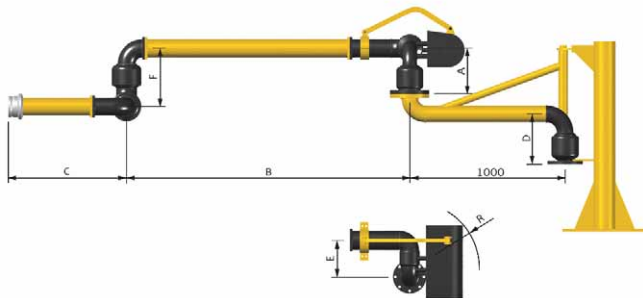
Φ	A	B	C	E	R
3"	235	3048	2184	273	437
4"	259	3048	2210	335	500

Bottom Loading Arms

Our bottom loading arms were developed to provide the following advantages:

- **Quicker loading:** Besides allowing simultaneous loading of several compartments, the bottom loading system allows for higher flow rates, because the loading process is from the bottom up, thereby reducing electrostatic build-up.
- **Increased operating safety:** The entire connection procedure to the tank truck is done with the operator on the ground, thereby eliminating risks of falling or gas inhalation while loading, in addition to allowing for confinement of gases for burning and/or recovery.
- **Lower cost:** Eliminates the need to construct overhead loading platforms, access gangways, etc.

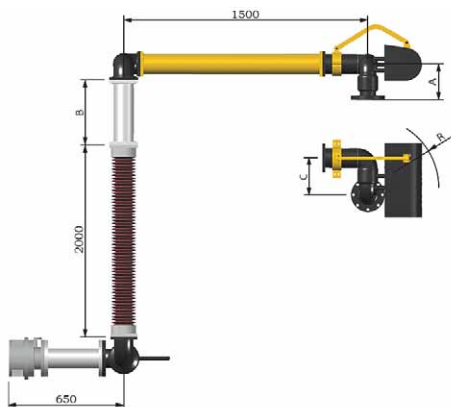
G Type



Typical dimensions (mm)

Φ	A	B	C	D	E	F	R
2"	190	1500	600	190	205	205	420
3"	235	1500	600	235	273	273	437
4"	259	1500	600	259	335	335	500

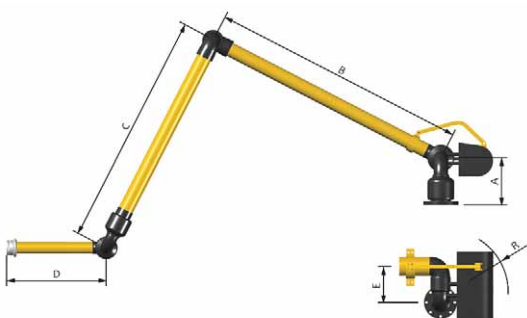
P Type



Typical dimensions P32API400/300 (mm)

Φ	A	B	C	R
3"	235	AS PER CLIENT	273	437
4"	259	AS PER CLIENT	335	500

M Type



Typical dimensions (mm)

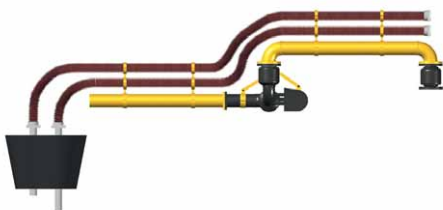
Φ	A	B	C	D	E	R
11/2"	155	1500	1500	600	170	406
2"	190	1500	1500	600	205	420

Special Loading Arms

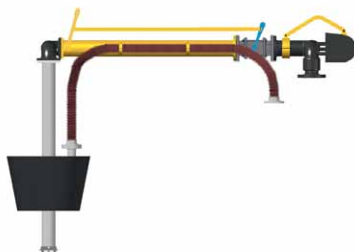
The basic loading arm models shown are those typically used by petroleum, chemical and ethanol terminals, etc. In addition to these standard arms, Redlands has developed various special models for different specific requirements, aimed at fulfilling the customer's most particular needs, determined by the various applications and handling of corrosive or toxic products.

The materials involved in the production of these arms are classified according to specifications of chemical resistance, provided by the user.

Hose support systems for loading and vapor recovery systems.



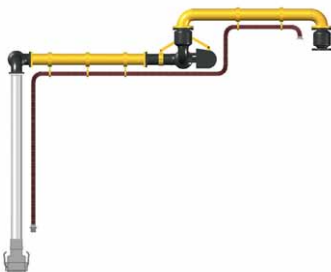
Loading arm with vapor recovery systems and manual locking valve.



Loading arm for refuelling locomotives



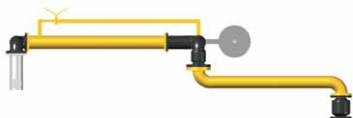
Special loading arm with connection through valved quick couplers for additive mixed liquid loading.



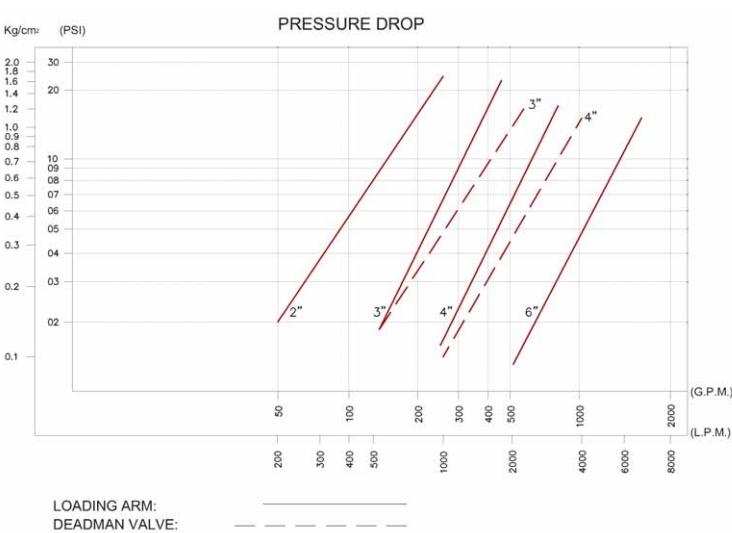
Pneumatic loading arm for insalubrious environments.



Loading arm with counterweight and telescopic lock, for filling drums.



Velocity m/sec.							
LPM	2"	3"	4"	6"	LPM	4"	6"
400	3.1				3000	6.1	2.6
600	4.6	2.1			3250	6.6	2.9
800	6.1	2.8			3500	7.1	3.1
1000	7.7	3.5	2.0		3750	7.6	3.3
1250	9.6	4.4	2.5		4000	8.1	3.6
1500		5.2	3.0		4500	9.1	4.0
1750		6.1	3.5		5000		4.5
2000		7.0	4.0		5500		4.9
2250		7.9	4.5	2.0	6000		5.3
2500		8.7	5.1	2.2	6500		5.8
2700			5.6	2.4	7000		6.2



Marine Loading Arms

Redlands represents Woodfield Systems Ltd, a UK-based company of the MacGregor group, which has been manufacturing marine loading arms continuously since 1954. The loading arms are used for liquid and/or gas transfer between the pier and the ship.

Woodfield loading arms can be operated manually, hydraulically through levers, and electro-hydraulically, the latter either through the operator panel or by remote control.

Marine arms are composed of a riser pipe, internal and external arm, and are built with pipe diameters from 6" to 24", depending on the customer's needs. These arms are based on a pantographic system, whereby the arm is completely balanced. At end of the external arm there is a triple swiveling joint (TSA), which allows for the flange of the arm always to be parallel to the ship flange. This connection to the ship can be made in three ways:

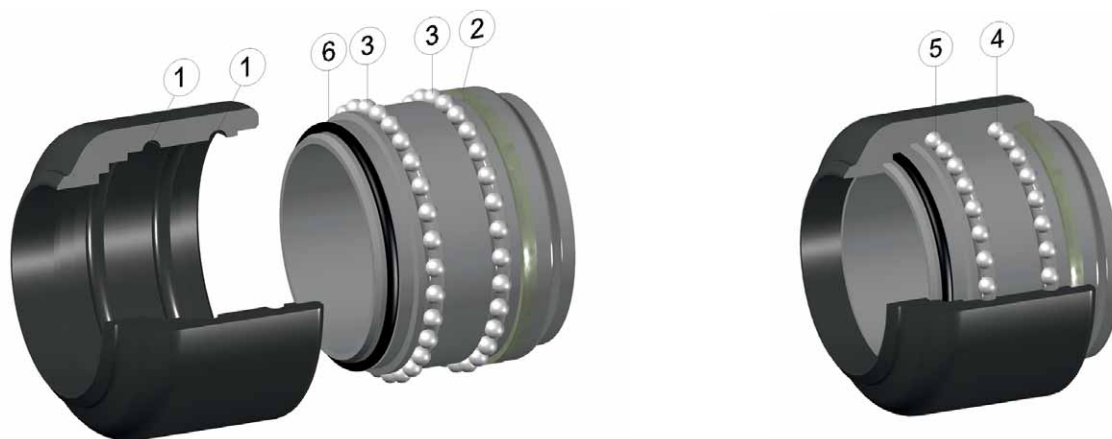
- standard flange
- manual coupler
- hydraulic coupler

Woodfield also offers emergency release systems, in case the ship accidentally begins to pull away from the pier during operation. When actioned, they automatically release the ship and prevent the arm from being carried out to sea.



Swivel Joints

Redlands swivel joints are used in many industrial applications, for example, in hose reels, floating suctions, drains for tanks with floating roofs, prevention of crushing and torsion of heavy or clumsy hoses, rigid pipes for loading and unloading liquids, gases and solids, chemicals and by-products, under vacuum or pressure, without any articulation difficulties. They are manufactured in several materials, in different diameters and styles, all in order to meet your requirements.



01 - RACEWAYS ALIGNMENT

The double raceway track assures the precise alignment of the male and female components of the swivel joint, which prevents locking of the swivel caused by temperature changes or heavy radial loads.

02 - SEALS

Seals are placed between the male and female components, not allowing contact of the product with the raceway. The other seal protects the raceways and ball bearings from the external contaminants, such as rain, dust, etc. The double seal ensures perfect lubrication. When used in submerged applications, an additional o-ring will be placed.

03 - BALL BEARINGS FOR LONG DURABILITY

All swivel joints are supplied with carbon steel ball bearings, except for the 3700 series, which has stainless steel bearings. Should you need stainless bearings in other swivels, these can be ordered.

04 - LUBRICATION

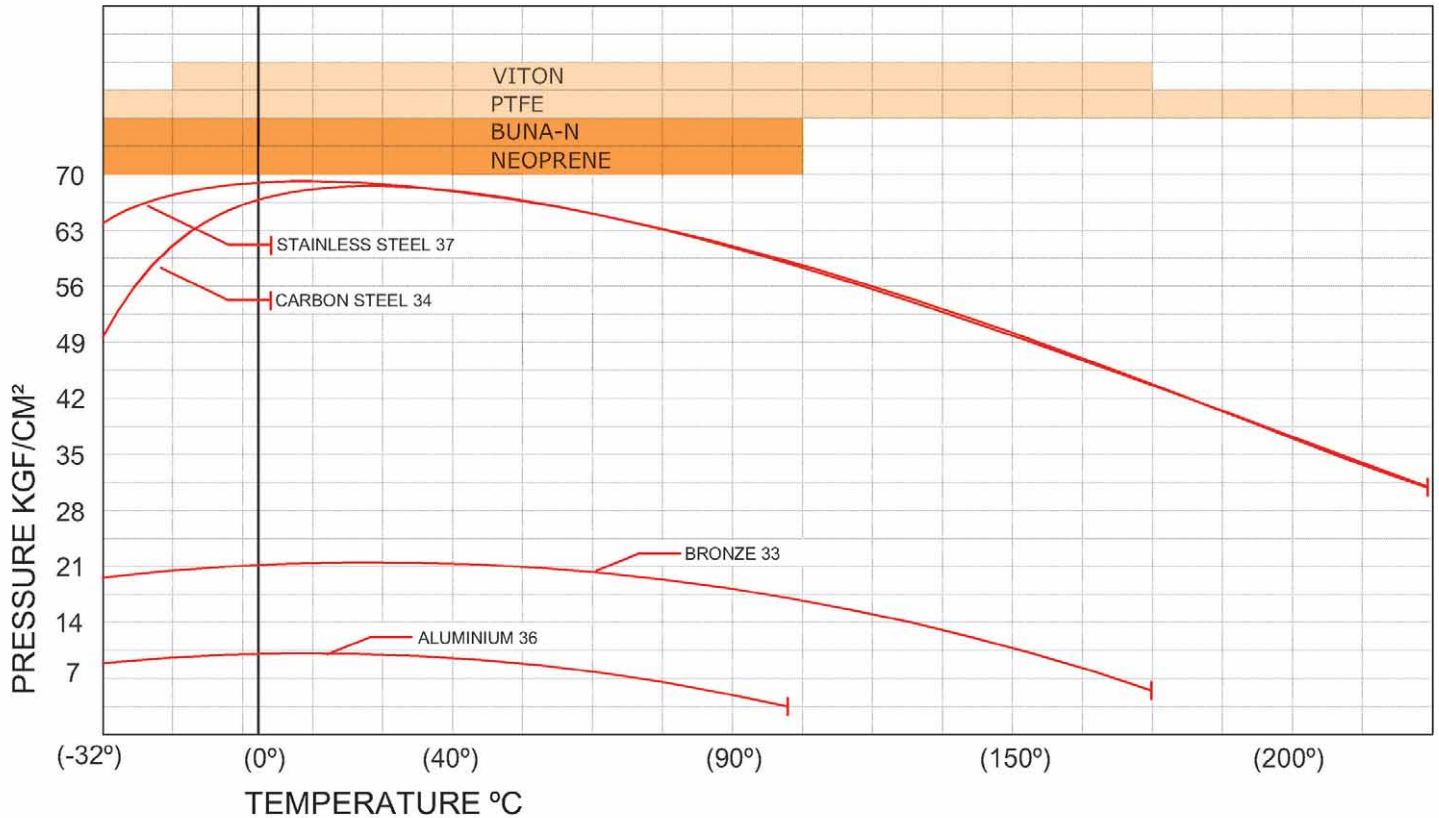
The bearing raceways are lubricated under pressure. They come pre-lubricated from the factory, except for the swivel joints for special applications (oxygen, food products, etc.) where the adequate choice depends on the final user needs. Swivel joints for immersed service have factory sealed lubrication.

05 - ADJUSTMENT

The bearing raceway plugs are factory set, and no further field settings are required.

06 - SEALS

The inner o-rings provide a good seal against rotative action. REDLANDS' swivel joints are available in four different construction materials and various seals. Stainless and carbon steel joints are manufactured from forgings and applicable to more severe service; aluminum and bronze joints are cast for light to moderate service.



3300 Series

The body (male/fem. part) and bearing plug / retention are constructed in cast bronze. The ball bearings are in steel. The inner o-ring in VITON (std.) and external dust guard in felt.

3600 Series

The body (male/fem. part) and bearing plug / retention are constructed in cast aluminum. The ball bearings are in steel. The inner o-ring in VITON (std.) and external dust guard in felt.

3700 Series

The body (male/fem part) and bearing plug / retention are constructed in stainless steel. The ball bearings are in stainless steel. The inner o-ring in VITON (std.) and external dust guard in felt.

3400 Series

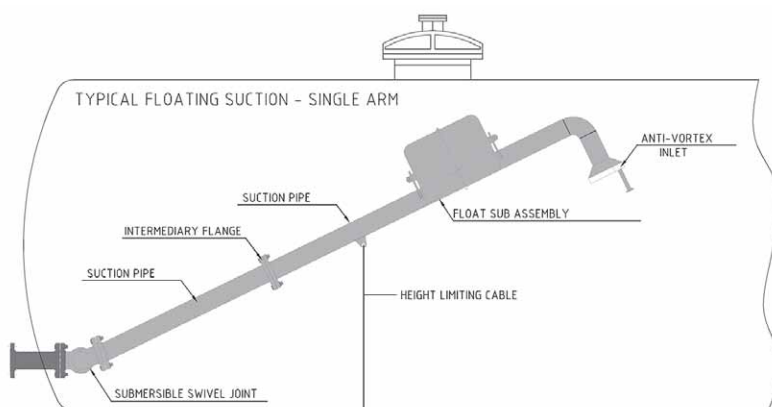
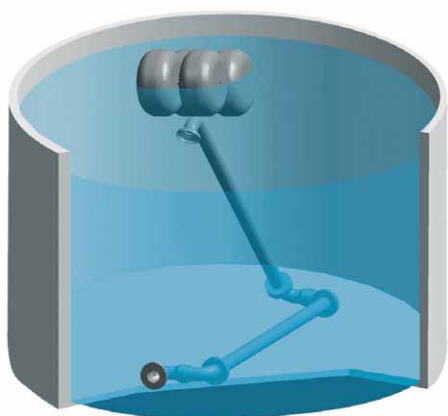
The body (male/fem part) and bearing plug / retention are constructed in carbon steel. The ball bearings are in carbon steel. The inner o-ring in VITON (std.) and external dust guard in felt.

Floating Suctions

Floating suction are composed of articulated piping used to drain the liquid from tanks. They are used in applications such as the control of liquid levels, leak prevention and in the separation of residues from products, thus guaranteeing products purity such as aviation kerosene, as an example.

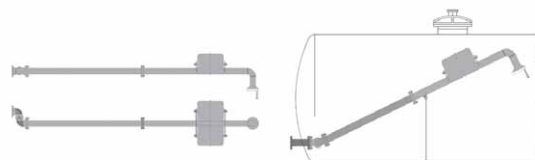
Redlands' floating suction have been specially designed to be used in tanks for storing liquid products, where no contamination and/or impurities are allowed during the transfer procedure (e.g. aviation kerosene, gasoline, alcohol, etc.). Available in one, two, or three arms, according to the tank size and type.

Operation: Through pipes interconnected with swivel joints and supported by floats fixed on the upper section, liquid removal is always close to the maximum volume available and/or at a predetermined level.

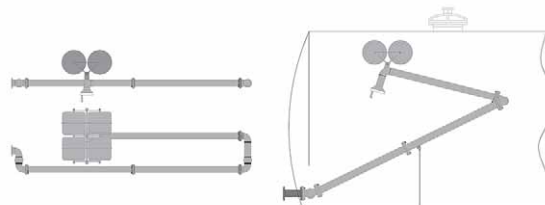


1, 2 & 3 Arms

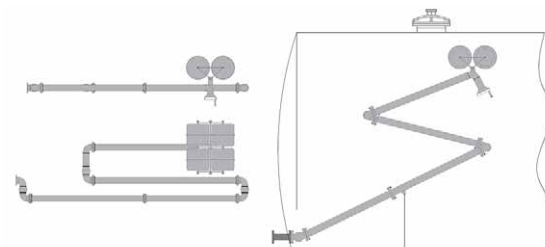
Floating Suction composed of 1 arm



Floating Suction composed of 2 arms



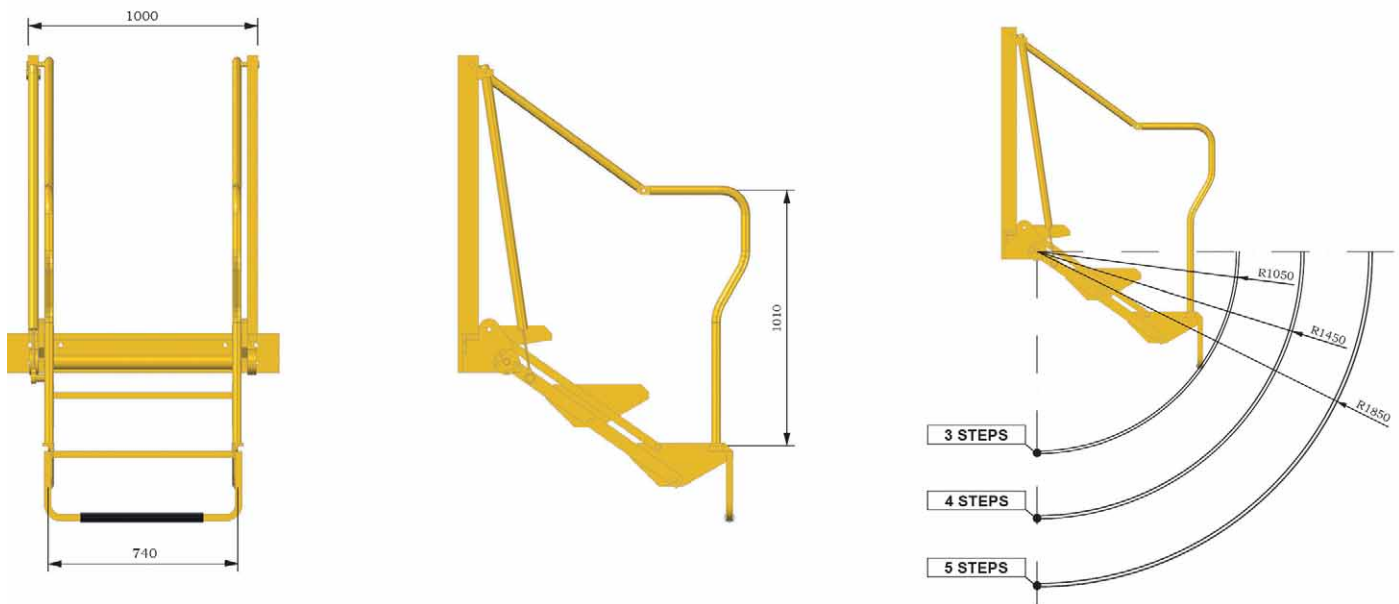
Floating Suction composed of 3 arms



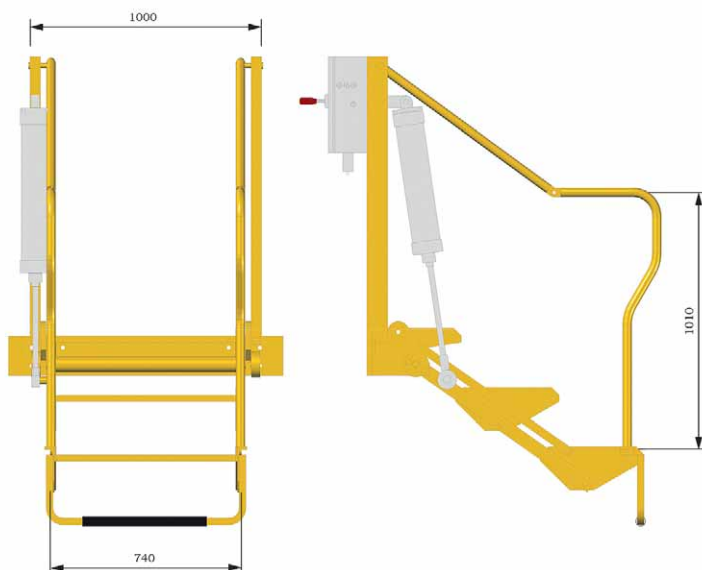
Access Gangways

Redlands' access gangways are used on raised platforms where the transfer of chemicals, petrochemicals and by-products, from the terminal to the vehicle, takes place. They are designed to facilitate the operator's access between the platform and the tank truck during the loading / unloading procedure. Constructed in carbon steel, these access gangways can be supplied with three, four or five steps, which are manufactured with a non-slip material. They are also provided with a locking device when in the rest position, and with handrails on both sides. Also available with pneumatic actuation and guardrails.

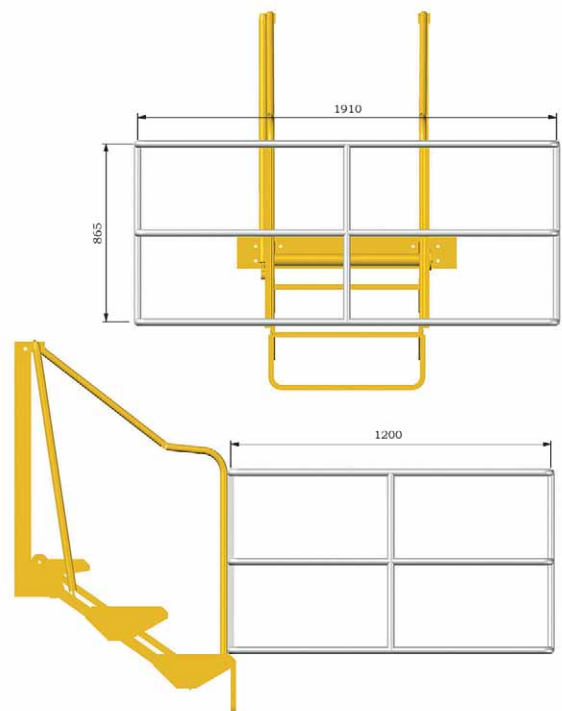
3, 4 and 5-Step Access Gangways



Access Gangway with Pneumatic Cylinder



Access Gangway with Guardrail

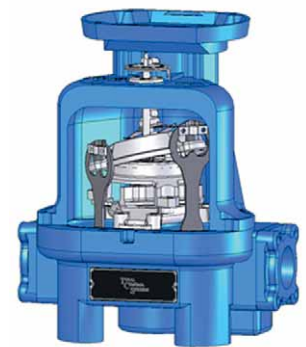
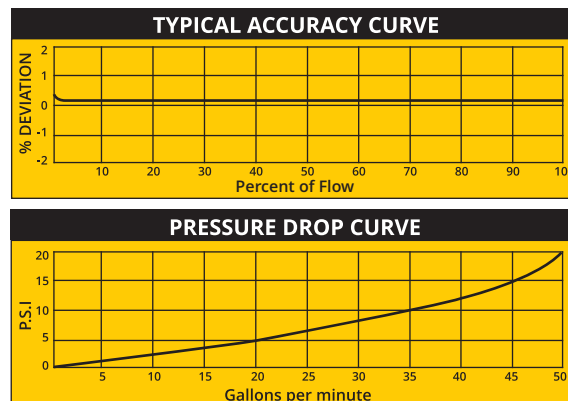


Flow Meters

Total Control System (TCS) positive displacement flow meters and their accessories (e.g. air eliminating filters, mechanical and electronic volume pre-determiners and totalizers, pulse emitters, shut-off valves, etc.) are designed to meet the needs of industries in segments such as chemicals, petrochemicals, petroleum, and food products, among others.

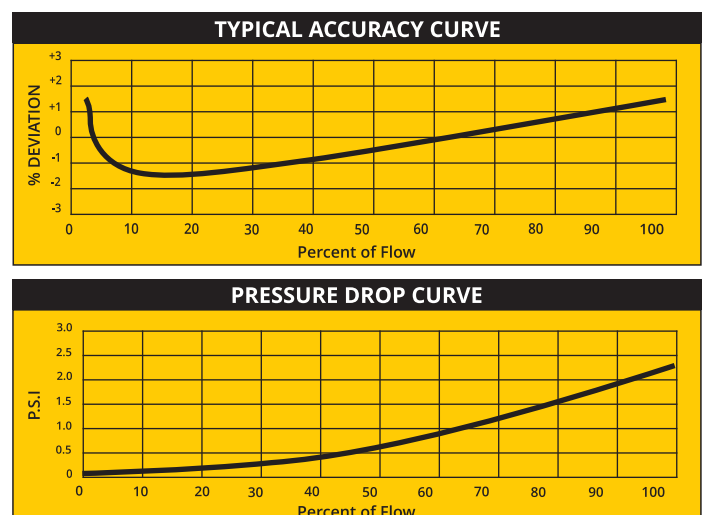
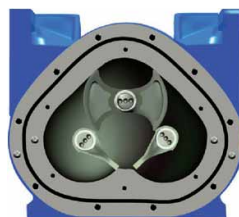
Piston Positive Displacement Flow Meter - Series: 682

The 682 reciprocating piston flow meter combines outstanding accuracy (0.1% of flow rate) with one of the widest turndown ratios (250:1) in the industry. The 682 reciprocating piston flow meter has a rugged industrial design that is tolerant to changing viscosities, temperatures and liquids with suspended solids. This proven design has over 70 years of unmatched performance, and continues to provide the very best in flow measurement, backed by our industry-leading 10-year warranty!



Rotary Positive Displacement Flow Meter - Series: 700

Total Control Systems' 700 family of rotary flow meters has a simple and efficient design, consisting of a housing and three rotors that rotate in unison within the measuring chamber. The absence of wear, resulting from no metal-to-metal contact inside the chamber, eliminates any deterioration in accuracy and provides a long service life. The accuracy of this meter at 5:1 is +/- 0.1% of the max. nominal capacity with repeatability of 0.02% of the nominal flow rate.



Meter Types

SP - Standard Petroleum (Aluminum)	Refined petroleum products, such as gasoline, fuel oils, diesel, bio-diesel, vegetable oils, soy bean oil, kerosene, motor oils, ethylene glycol (anti-freeze), etc.
SPA - Standard Petroleum (Aluminum Aviation)	Refined petroleum products such as aviation gasoline, jet fuels, gasoline, fuel oils, diesel, bio-diesel, kerosene, etc.
SPD - Standard Petroleum (Ductile iron)	Refined petroleum products such as aviation gasoline, ethanol blends, methanol blends, bio-diesel, gasoline, fuel oils, diesel, kerosene, vegetable oils, soy bean oil, etc.
IP - Industrial Products (Aluminum)	Food processing, chemicals, general solvents and many other liquids, such as corn syrup, soy bean oil, liquid sugars, shortenings, latex products, adhesives, etc.
IC - Industrial Products (Aluminum / Carbon Bearings)	Alcohols, chemicals, solvents, water and many other non-lubricating liquids, such as acetones, ethanol, naphtha, xylene, MEK, toluene, resins, etc.
AF - All Ferrous	Pesticides, fertilizers, chemicals, chlorinated solvents, agricultural chemicals, paint, ink, alkaline latex products, adhesives, liquid feeds, etc.
SS - Stainless Steel	Covers the same products as the SP, SPA, IP, IC and AF models, but includes special-handling liquids; such as acids, anti-icing fluids, vinegar, fruit juices, etc.
SSD - Stainless Steel	For ARLA 32 applications (DEF / Adblue / AUS32, etc.)

Operational specifications of the meters.

Meter	Type Available	Flange Connection*	Max. Capacity	Working Pressure	Working Temperature**
682-15	SP, SSD, SPA, SPD, AF, SS & SSD	1 1/2" NPT Flange; 1" and 2" optional	0.76 to 189 LPM	150 PSI (10,5 BAR)	-40°C to 71°C
700-15	SP, SPA, IP & IC	1 1/2" NPT Flange; 2" optional	19 to 227 LPM	150 PSI (10,5 BAR)	-40°C to 71°C
700-20	SP, SPA, SPD, IP, IC, AF & SS	2" NPT Flange; 1 1/2" optional	38 to 380 LPM	150 PSI (10,5 BAR)	-40°C to 71°C
700-25	SPA & SPD	2" NPT Flange;	38 to 567 LPM	150 PSI (10,5 BAR)	-40°C to 71°C
700-30	SP, SPA, SPD, IP, IC & AF	3" NPT Flange; 2" optional	76 to 760 LPM	150 PSI (10,5 BAR)	-40°C to 71°C
700-35	SPA & SPD	3" NPT Flange;	76 to 1135 LPM	150 PSI (10,5 BAR)	-40°C to 71°C
700-40	SP, SPA, SPD, IP, IC & AF	4" NPT Flange; 3" optional	151 to 1893 LPM	150 PSI (10,5 BAR)	-40°C to 71°C
700-45	SPA & SPD	4" NPT Flange;	151 to 2271 LPM	150 PSI (10,5 BAR)	-40°C to 71°C
700-60	SPA	6" NPT Flange;	303 to 3028 LPM	150 PSI (10,5 BAR)	-40°C to 71°C

* Flange with NPT thread is standard; BSPT, overlapping flanges for welding, ANSI and others, available upon request.

** Higher working temperatures can be achieved with reduced pressures. For further information, please consult our factory.

Solutions in Grounding and Connection Equipment

Newson Gale's grounding and bonding solutions are divided into three product lines, which allow customers to specify solutions in static control, based on the type of process performed, on the static charge build-up scale and in the possible consequences of an electrostatic discharge.

CEN-STAT™ - Clamps, Cables, Reels and Grounding Test Devices.

The Cen-Stat™ line of grounding clamps, cables and reels offers static control solutions for a wide range of electrostatic hazards in flammable and explosive atmospheres. The clamps are made of stainless steel, with hardened tungsten carbide tips, thereby maintaining the capability of passing through paint and dirt for a long time, assuring proper grounding. Cables are available in spiral form, or reels. These cables are coated in high visibility Hytrel® - which is static dissipative.



BOND-RITE® - Self-testing Clamps with Visual Indicator and Monitoring.

The line of self-testing clamps allows professionals involved in processing flammable products to check whether conductive equipment, subject to dangerous levels of build-up of electrostatic charges, are able to dissipate them safely and efficiently. The clamp, or an indicator station, has a green LED that will flash continuously, indicating that the operator may proceed with the process, knowing that there will be no build-up of electrostatic charges.



EARTH-RITE® - Indication, Monitoring and Outputs for Control Systems.

Whenever there is a real danger of static charge build-up on equipment installed in explosive atmospheres, the Earth-Rite® line of grounding and interlocking systems will provide greater operational safety. The RTR monitor, for example, checks the circuit between the tank truck and the monitor, the presence of a static dissipative earth, and whether there is a real connection to the tanker. Only after confirming all three connections is the loading process released.



Couplings and Breakaway

API Couplers

API couplers for transferring liquids, are manufactured in accordance with the strictest quality standards, incorporate the very latest in terms of technology and safety in connections, and meet and/or exceed the practical recommendations of API RP1004 standard.

The vapor couplers are also manufactured according to API RP1004 standard and are responsible for recovering vapor in Bottom Loading-type platforms. Use of this system for transferring liquids and gases reduces the emission of vapors in the terminal and contributes to improving environmental and health conditions.



Dry Disconnect Couplers

Wide application in operations of transferring and handling hazardous gases and liquids, mainly in the chemical and petrochemical segments. Also available for LPG, cryogenic products, and the aviation market.

The system consists of a coupler (female) and an adapter (male) of the same size, for quick and safe coupling. It allows opening and flow transfer only when coupled, and decoupling is dry and with no splattering or emission of vapors to the atmosphere. Manufactured in a wide range of materials and seal types, and available in diameters from 1" to 8". Installation can be threaded or flange mounted, allowing greater flexibility and meeting a wide array of specifications.



Breakaway

The immediate locking safety couplers (breakaway) are used to protect terminals and equipment in loading/unloading operations. In the event of accidental pulling of the equipment, when the predetermined breaking point is reached, these couplers will separate and internal valves will close automatically on both sides, eliminating unwanted release of product. They act as a fuse on your production line. We have a wide range of designs and diameters for land and marine applications.





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