

## Your safety. Our mission.

Safe Tanker Access Tanker Loading Arms Meter Skid Systems  
Cryogenic & LNG Floating Suctions Swivel Joints Electronic Earthing  
Turnkey Package Solutions Servicing



# Introduction to the company

Telephone: +44 (0) 1303 81 3030 / Email: info@carbisloadtec.com / For technical data, please visit [www.carbisloadtec.com](http://www.carbisloadtec.com)



## Our Company

Carbis Loadtec Group Ltd, is a global provider of unique solutions for bulk fluid transfer and tanker fall prevention. We believe in providing the safest solutions for your operators.

Loadtec Engineered Systems was formed in 1996 to provide an expert and very focussed offering for companies wishing to purchase point of transfer liquid handling equipment. In this role we proved Loadtec to be the primary, specialist source for liquid handling solutions.

On 1st September 2019, Loadtec Engineered Systems migrated its personnel and systems to a new company, Carbis Loadtec Group Limited, reflecting a new partnership between Sam Carbis Solutions Group and the Loadtec Family.

Sam Carbis Solutions Group is a fourth-generation family business based in South Carolina and employing over 250 personnel in the fabrication of specialised systems for fall prevention. Loadtec Engineered Systems Ltd exclusively represented Carbis for 22 years throughout

the world and so they were already used to working together, cooperating and developing unique solutions for customers' unique applications.

This partnership gives Carbis Loadtec an unrivalled portfolio of fall prevention systems and packages. The range of capability available to Carbis Loadtec customers means there is no tanker loading or access problem that cannot be resolved with proven equipment and systems. Over the years the company has significantly grown their Fall Prevention related business and has provided hundreds of systems into Europe, Africa, the Middle East and Asia.

Our systems for tanker filling and emptying have been adopted by virtually all of the major blue chip companies around the world and we are known for our timely delivery of quality products designed to future proof our client's operations along with excellent customer service.

Our customers want suppliers who will give them the time to listen and

understand their issues, develop schemes and proposals that meet their technical and financial constraints, and to deliver long lasting, innovative solutions.

With extensive industry experience, Carbis Loadtec provide comprehensive packaged solutions across a wide range of industries. We draw on the experience and portfolio of our group and partners, to engineer large scale, infrastructure projects, ranging from surveying and refurbishment of existing sites through to complete, green-field developments.

Carbis Loadtec is represented globally by a number of agents and distributors who are carefully selected to ensure they provide high levels of support for our customer needs.

Carbis Loadtec is determined to give you the best customer service experience from initial enquiry through to delivery and beyond.

Carbis Loadtec is an ISO 9001 registered company certified by SGS.



**BEST TECHNOLOGY  
PROVIDER  
2017**





Our Managing Director, Alec Keeler

Alec Keeler, an expert in best practice with regards to fall prevention and tanker loading in terminals and process plants, is the Managing Director of Carbis Loadtec Group.

With Alec's 40 years of experience and a collective 150 years within the company, Alec and his team certainly know a thing or two about how to load and empty tankers.

Prior to starting Loadtec in 1996, Alec worked for OPW Engineered Systems and Emco Wheaton, starting as a Sales Engineer and later as Global Marketing Manager. Alec's early career was with Babcock & Wilcox where he trained as a Piping Engineer.

Alec is a keen adventurer and photographer in his free time. He has raised money for charities like The British Lung Foundation and Young Lives Foundation by climbing Mont Blanc and Mount Kilimanjaro. Many of the photographs on the Carbis Loadtec website are courtesy of Alec and he is often seen out and about with his camera on his business trips.



Industries we work in

Carbis Loadtec works in a vast range of industries and below are just some that we are involved in:

- Aviation
- Bitumen
- Bulk Fuels
- Cement/Bulk Powder
- Chemicals
- Edible Oils
- Fertilisers
- Food/beverage
- LPG
- LNG
- Marine
- Oil & Gas
- Paint
- Petrochemicals
- Pharmaceutical
- Ports & Harbours
- Rail
- Waste solvents
- Water
- Whisky

Our Customers

Carbis Loadtec services a wide range of customers from multi-national engineering and procurement companies to one-man businesses. We are often involved in providing engineering consultancy at initial concept through to commissioning, although, we are also happy to offer competitive proposals based on third party design. We build long-lasting relationships with our customers who return for further equipment over the years. Here is a list of some customers we are working with or have worked with.

- Accordis
- Addison Projects
- ADM
- Advanced Elastomer Systems
- Aesica
- Atlantic Fuel Supply
- Air BP
- Airbus
- AKER Solutions
- Akzo Nobel
- Albermarle
- Alcan Chemicals
- AMEC
- Arabian Amines
- Arabian Chemical Tankers
- ARCO
- Babcock
- Bamburi Cement
- Banner Chemicals
- Bassell Polyolefins
- BASF
- Bayer
- BOC
- Bombay Spirit
- Botlek Tanker Terminal
- BP Oil
- British Sugar
- Brunner Mond
- Buckfast Abbey
- Black & Veatch Pritchard
- Cadbury
- Cargill
- Castrol
- Chemtura
- Chevron
- Chivas
- Cognis
- Corus
- Costain
- Croda
- Cytec
- Dantec
- Diageo
- Diversy
- Dow Chemical
- Dow Corning
- Dow Agrosiences
- Dragon Alfa Cement
- DSM
- Dunlopillo
- DuPont
- Dynea
- Elastogran
- Elementis
- Eli Lilly
- Ensus
- Entec
- Entrepose Group
- ERIKS
- Esso Petroleum
- Exxonmobil
- Felixstowe Dock
- Flexsys
- Fluor
- Foster Wheeler
- Foynes Engineering
- Fuel Supplies
- Gatwick Airport
- GB Fuels
- GEA Process Technology
- Givaudan
- Glasgow Airport
- Glaxosmithkline
- Glen Turner Distillery
- Galliford Try
- Goro Nickel S.A.S
- Grace
- Grant & Livingston
- Growhow
- Guinness
- Halliburton
- Halterman
- Henkel
- Hexion
- Highland Malt
- Highland Distillers
- Hoyer
- Humber Oils
- Huntsman
- Hydrasun
- Hyundai
- Imerys
- Immingham Storage
- Indorama
- INEOS
- Interserv
- Irish Sugar
- Jacobs Engineering
- John Dewar
- Johnson Matthey
- Kanab
- Karachaganak Petroleum
- Kellogg
- Kemira
- Lafarge
- Linde
- Loch Lomond Distillery
- Lucite
- Ma'aden Phosphate
- Masterfoods
- Merck Sharp & Dohme
- Michelin
- Ministry of Defence
- Monsanto
- Motherwell Bridge
- Mott MacDonald
- Mowlem Engineering
- Murco Petroleum
- Navigator
- Neste Oil
- New Britain Oils
- NNPC
- Novartis
- Nu-Farm
- Oil Pipelines Agency
- Orica
- PDE
- Petrochem Carless
- Petrofac
- Pfizer
- PML
- Polimeri
- Proctor & Gamble
- PTT
- Rhone Poulenc
- Rhodia
- Rio Tinto
- Roche
- Sabic
- Saudi Aramco
- Saudi Ethylene
- SI Group
- Shell Oil
- Schwarz Pharma
- Simon Storage (now Inter Terminals)
- Solutia
- Swords Laboratories
- Syngenta
- Tate & Lyle
- Tessenderlo Chemicals
- Total
- Tupras
- Unichema
- United Distillers
- Univar
- United States Air Force
- Valero
- Victrex
- VOPAK

Fall Prevention Systems

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# Fall Prevention Systems Vertically Elevating Platforms with Tilt Capability (VELP-T)

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Safe and reliable access onto tanker tops is a subject of increasing concern to all engineers and safety managers involved in the area of bulk liquid transfer. Unacceptable levels of injury and fatalities in recent years have made this one of the leading issues within the bulk fluid transfer industries

In many cases, switching to bottom loading is not feasible. There exists a clear need to make access on tanker tops fool proof and as safe as possible. Carbis Loadtec offers a wide range of systems to suit every budget and tanker/plant configuration and these are designed to suit each particular site needs.

It cannot be said that a problem is unique, as there are an infinite number of tanker sizes and access choices possible; we have the solution for all of them.

The VELP system is designed to provide drivers and operators with flexible and safe access on to tankers of varying heights and lengths, whether to load or sample liquids or to open vents for bottom loading. The unique feature of this system is that each end of the cage can be tilted to match the slope of a tanker top. Galvanised or GRP floor panels can be specified if necessary. Used in conjunction with the Carbis Loadtec range of loading platforms and loading arms, the system can be designed to meet almost any customer requirement.

The continuous floor level removes any concerns about tanker walkways and falling off the end of the tanker. The tilting system ensures that the gap between the cage and the tanker is minimised and limit switches stop movement before the tanker is contacted. The range of travel is 1.5m from 3.2m to 4.7m, which gives a safe margin for passing traffic and ensures every form of tanker transport can be safely accessed.

The system can be designed for any application, ranging in length from 4m to 12m. The platform consists of two sections: Inboard, closest to the folding stair, is the walkway; a 0.6m wide grated plank surface that allows the operator to walk easily along the full length of the tanker top. The second section consists of the flip-up panels with a serrated non-slip surface. They are easily lifted and parked against the far handrail then secured using finger latches.



10m Hydraulically Actuated VELP with wide flip up panels - Wales

Each system is powered using the most appropriate method depending on the site conditions. Variants are available for both ATEX and Non Ex locations. At platform level there is a panel to provide the operator with simple, push-button control of the up, down and tilt movements.

Limit switches on the underside of the cage prevent the unit resting on the tanker, making it ideal for weighbridge activities

and further limit switches on the end frame ensure the cage is tilted only within its safe design range.

## Did you know?

### Liability notice

When a vehicle drives into your business premises, you are held accountable for the safety of the individuals who load your product into that tanker.



3 x 6m Pneumatic VELP - Scotland - Spirits Industry



10m Hydraulic VELP with wide flip up panels providing access to tanker manlid - UK - Chemical Industry



6m Electric VELP with Pneumatic top loading arm - Sweden - Chemical Industry



# Fall Prevention Systems Vertically Elevating Platform (VE LP)

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2 x 10m Pneumatic VELP showing full height range - Portugal - Wine Industry

There are many tanker access situations that require the operator to have free access to the entire tanker top. This can mean walking along the top of a round barrel or ISO container with varying designs of walkway, manhole positions and associated trip and fall hazards

The Carbis Loadtec VELP has its own integral walkway built into the structure, giving it greater rigidity and enhanced safety. It is integrated with a folding stair unit which is manually operated. The VELP is available up to 12 metres long with aluminium construction. The system can be designed to be used for inspection purposes or with a number of loading arms. The system is supplied with flip up floor panels so that access to all areas of the tanker is independent of tanker walkways. Carbis Loadtec has supplied these as single or double sided units, in tight constraints or as stand-alone structures. The platform is powered using the most appropriate method as determined by the

site services available. The system can be supplied in accordance with ATEX and is operated by a single, simple deadman switch from the platform level. Like the tilting version overleaf, it can be fitted with switches to detect the tanker and stop the downward movement. Similarly it can be supplied with a parking switch that the client can use to connect to a traffic management system.

Please ask us about the range of accessories we can provide to make these systems even more user friendly



10m painted, Pneumatic VELP with pneumatic top loading arm - Netherlands - Chemical Industry



VELP from below showing the rubber bumpers of the tanker detection flaps - UK - Chemical Industry

## Did you know?

### A deadly combination – fall arrest and flammable liquids

Fall arrest systems and flammable liquids don't mix. If a conflagration occurs while an operator is on the tanker, the fall arrest wire will slow down his escape and survival chances. Fear and flight instincts kick in. Unhooking carabiners doesn't.



VELP panels lifted showing access to Storm Box on top of tanker



# Fall Prevention Systems Rail Tank Car Access

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Track mounted Gangways with Loading Arm and meter skids for Acid - Saudi Arabia - Chemical Industry



Pneumatic Top loading arm being used inside folding stair Halo cage for rail car loading - Saudi Arabia - Chemical Industry



30 x 6m Custom VELP designed for both road and rail tank cars - Saudi Arabia - Chemical Industry



Rail Tank Car Access Systems with track mount

Carbis Loadtec Rail Tank Car (RTC) access systems will vary widely depending on the region of the world, type of RTC being used and actions being taken on the top of the vessel

The pictures above show two systems installed in the Middle East. One shows loading stations used by both road tankers and rail cars; resulting in a hybrid system designed to allow easy and simple conversion from a large cage to a multi-modal. The main image and bottom right show other stations that require simpler folding stairs that can track sideways because of RTC mis-spotting. In countries where the RTC design is US-influenced, the safety cage most often is a “halo” type to

supplement the crash box fitted to RTCs. However, we are also able to provide three-way adjustable cages that fit over the crash box.

## Did you know?

Rail car clearance envelopes will vary widely, depending on the plate designation of the RTC or tank wagon. All equipment must be able to park clear of this envelope.

# Fall Prevention Systems Standard Folding Stairs

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Simple access onto a tanker is provided by the folding stair unit. Available with a range of optional safety cages, this simple retractable stair is the primary method of tanker top access all over the world

The proven design with parking lock gives an effective method of bridging a variable gap between platform and tanker. Generally available as three, four or five step systems, they are spring counterbalanced and have features such as a parking lock and split 2nd step to avoid toe traps when lowering. Safety cages are available between 1.5m or 3m wide. Optional extras such as pneumatic balance and parking sensors can be fitted. Carbis Loadtec provide a combination of aluminium, painted, galvanised and stainless steel systems to suit your application.

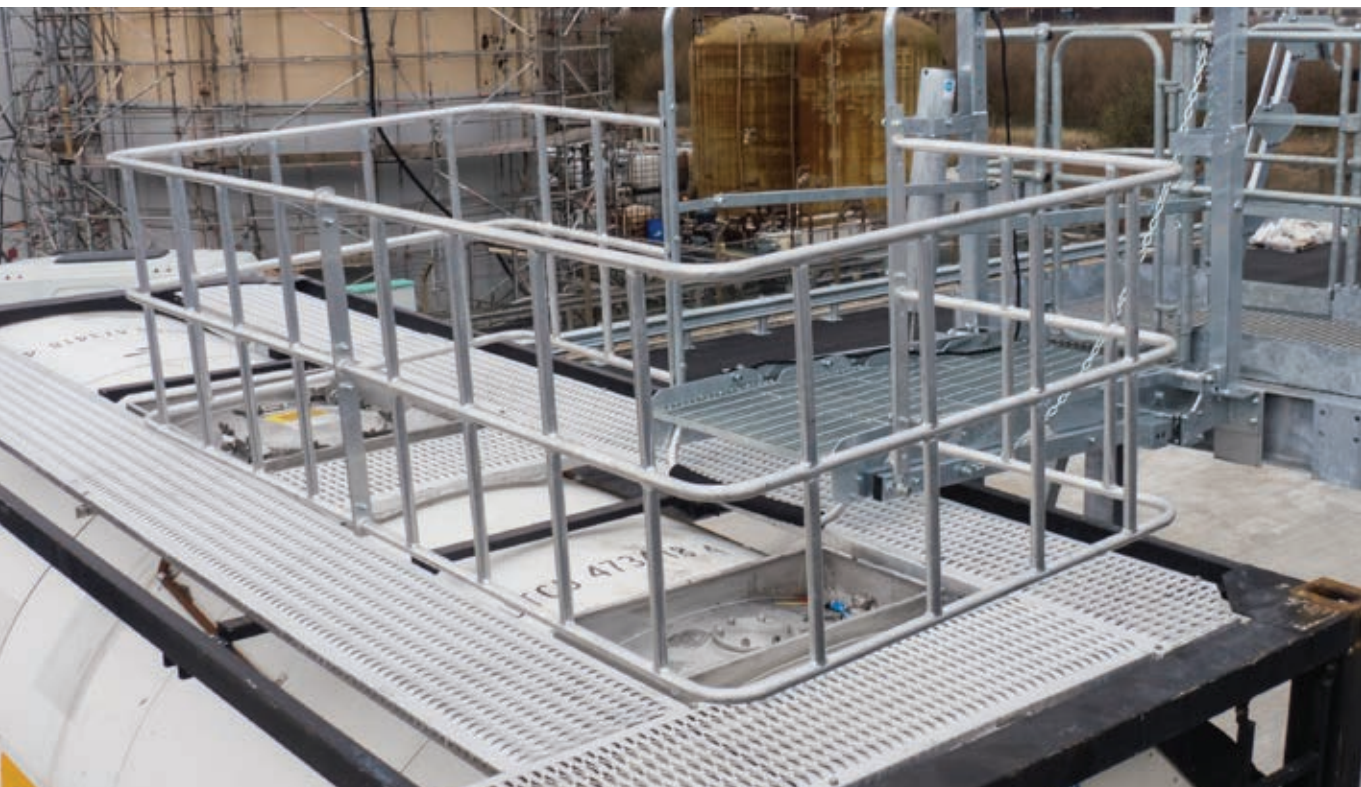


4-Step Folding Stairs with Safety Cage and Top Loading Arm (Parked)

## Did you know?

**Fall From Height. The biggest workplace killer.**

From 2012 to 2017 falls from height accounted for 28% of all worker deaths in the UK - averaging 40 deaths per year. Carbis Loadtec have systems readily available that can remove the risk of working at height on tanker tops.



4 Step Manual folding stair with 2.8m x 1.4m 3 rail safety cage - UK - Chemical Industry



# Fall Prevention Systems Large Cage

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12m Large cage with internal tracking gate to reduce working area, all pneumatically operated - Finland - Fertiliser industry

In areas where access to tanker tops is infrequent, we provide a solution that meets both your financial and space limitations

The Carbis Loadtec Large Cage Tanker Solution can be supplied from four to twelve metres long and can fix to a single pedestal standpost platform. Generally these are supplied with aluminium frames; however the cage can also be specified with galvanised rails. The system requires five bar air to power the cylinders on the folding stairs and these are operated by a single simple lever at platform level.

The working height range for the tankers should be between 3.4 and 4 metres for the cage to work most effectively. The cage has strengthening bars which provide rigidity.

Optional gates can be moved along the cage by the operator standing on the fixed platform. These will close off the areas of the cage that are not needed, decreasing the risk of falling off the end of the tanker.

## Did you know?

**If you need to access the top of tankers, how do you prevent potentially fatal falls?**

Wide safety cages provide complete fall prevention on top of trucks where multiple hatches need to be accessed for loading, unloading, venting, inspecting, or sampling. The simple design can be easily configured to fit onto your existing structures or supplied with any platform and stair configuration.

Carbis Loadtec also supplies custom fabricated platforms to suit this access system and can ship the packaged solution anywhere in the world.

# Fall Prevention Systems Track Mounted Folding Stairs

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Track Mount Folding Stairs and Access Platform

In situations where access for a tanker, or multiple tankers, is required along a road way, the Carbis Loadtec Track Mounted Folding Stairs gives total operational flexibility and safe access by having folding stairs mounted to a unique track

The track system also carries the safety barriers and swing-shut gates that give the walkway its integrity.

The Folding stairs are mounted on a carriage which rolls, using high quality bearings, along a special track system. The track is available in two, three and four metre long sections and can be retrofitted to most platforms. This system is used extensively where tankers are pulling alongside multiple storage tanks to discharge.

## Need Advice?

**We are here to help!**

Call us on +44 (0) 1303 81 3030



4 x Tracking Gangways (Folding Stair) with 78m track and swing shut gates - UK - Perfume industry



# Fall Prevention Systems Fixed Access Platform

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Safe and reliable access onto tanker tops is a subject of increasing concern to all engineers and safety managers involved in the area of bulk liquid transfer

The Carbis Loadtec Fixed Access Platform is designed to provide drivers and operators with secure and safe access on to tankers of varying heights, either to sample or load product.

Used in conjunction with the Carbis Loadtec range of fall prevention systems, the system can be designed to meet any customer requirement.

The method of access to the elevated level is by staircase which can be configured to suit site constraints and designed with escape and safety in mind.

These stations can be installed very quickly on foundations prepared by others to minimise site disruption.

## Did you know?

### Don't get sued

Carbis Loadtec can provide safety assessments for your loading spots to ensure you are meeting or exceeding local, national or international guidelines.



Tanker Loading Platform with Canopy and Loading Arm



Fixed Access Platform with 5 step folding stair and top loading arm - UK - Chemical Industry

# Fall Prevention Systems Mobile Access Cart

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TC-10 Mobile Access Cart providing safe access to the top of an ISO container for venting during unloading - UK - Chemical Industry

The Mobile access cart is designed to provide drivers and operators with flexible and safe access on to tankers of varying heights, either to sample or load product

Constructed in aluminium, these mobile platforms can be moved around a loading bay easily by one person or for longer distances with a tractor. Wheels can run parallel to tanker for areas where space is limited.

The Carbis Loadtec Mobile Access Cart consists of an aluminium flat-step extension ladder with open serrated metal plank steps giving an un-extended height of 3m under platform up to an extended height of 5m under platform.

The large (1.6m wide x 2.14m long x 1m deep) cage is attached to a 0.46m wide x 0.725m long platform at the top of the ladder. The cage has a 0.4m walk surface on the inboard side.

To provide easy mobility the access cart is fitted with 40cm foam-filled wheels.



TC-10 Mobile Access Cart providing safe access to the top of container for security inspection - Saudi Arabia - Chemical Industry

Levelling jacks at each corner provide a stable and firm base for safe ladder extension. The ladder is extended and retracted using a simple hand winch operation and the cart is easily moved around site using a steering handle with tow bar.

The access cart is supplied with CE certification and ATEX compliance.

## Did you know?

### Fall risk in the industry

901 non-fatal employee accidental falls happen in the transport and storage industry within one year in the UK. Carbis Loadtec's mobile access cart can take away the risk associated with occasional tanker access.



# Tanker Loading Arms Top Loading

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Standpost mounted metering skid with control valves and 3" 904L SS Top loading arm with pneumatic balance, telescopic drop pipe, vapour return, electrical trace heating and insulation - Ireland - Pharma Industry

Top loading is still the most widely used method of filling tankers around the world. Some instances exist where liquids, mainly fuels, have been transferred to bottom loading, but this is largely through legislation and global agreements

There remain some areas of the world where fuels are still top loaded. Generally these are small depots with low throughput, exploration facilities and countries where mass road tanker conversions have yet to take place. Traditional top loading systems for petroleum/fuel comprise of a variable reach loading arm with a slow closure shut-off valve. These are mounted on standposts at gantry floor level and can service 2-3 manhole openings on a correctly positioned tanker.

Remaining industries are not so fortunate. The diversity, complexity and hazards encountered when transferring many liquids into general purpose tankers means that it is easier and quicker to retain top loading. Along with Carbis Loadtec Fall Prevention Systems, we can make top loading very safe.

Top loading assumes the transport vessel is a simple barrel on wheels with a manhole in the top and a valve at the bottom. In almost all cases the tanker has no built-in high level detection or vapour return facilities. The advantage of top loading is that all the sophistication required can be fitted to the loading arm.

## This can include:

- High (and high-high) level probe
- Vapour collection
- Vapour pressure monitoring
- Anti-drip valve
- Telescopic drop pipe (Anti-splash/static generation)
- Simple spring counterbalance through to full wireless remote control of the arm movements

The arm is most suited for the loading of road or rail tankers using the manhole. The loading arm has a long reach and is suitable for applications where the manhole cannot be accurately positioned.

Because of the robust and high quality design of the swivel joints and the precise loading arm balancing, handling of the loading arm is very easy.

The "base" style of arm used primarily in the chemical industry is generally called the boom arm. The design utilises four swivel joints for articulation and has a supported boom, which means the part of the arm that moves vertically has a fixed length. This allows the spring cylinder to counter-balance a fixed load. Because of

this, items can be added to the arm during the design phase and have smooth and easy counterbalance. It also means that the arm has a wider range of articulation.

The options available for this type of arm are extensive and include; vapour collection and return via a cone and hose, high level detection, pneumatic balance or hydraulic 3-axis remote control, telescopic drop pipe to avoid splash loading and parallel arms.

The boom loading arm is also used where displaced vapours need to be collected at the top loading connection and transferred back to the platform for safe disposal. It is fitted with a cone to seal the manhole and a flexible hose which is piggybacked along the arm to a connection flange point.

The arm can be fitted with numerous features to enhance safety, handling and environmental protection.

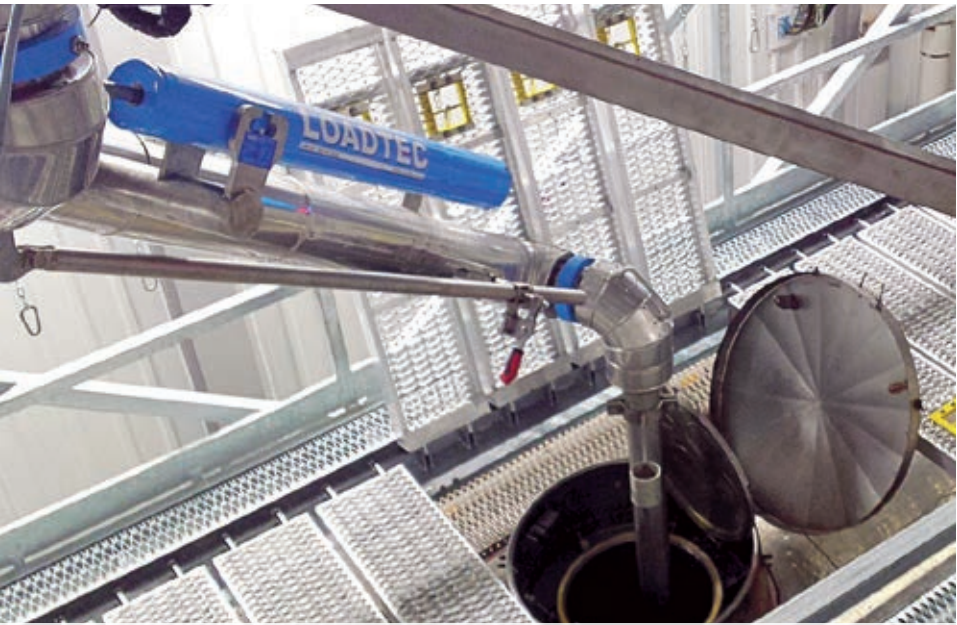


PTFE Lined Loading Arm on Vertically Elevating Platform

## Did you know?

### Most used method of filling a tanker

Top loading is still the most used method of filling a tanker due to the peripheral safety features such as high level alarm and vapour recovery that can be supplied as part of the arm.



4" Heated Top loading arm for Cooking Oil - UK - Food Industry



LA110  
Fixed  
Reach



LA120  
Variable  
Reach



LA130  
Long  
Reach  
(Supported)



LA140  
Long  
Reach  
(Un-Supported)



# Tanker Loading Arms Autoload®

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The Autoload® arm bridges the gap between what is considered possible now and the inevitable future direction of the industry. It is a future that we will embrace, as we continue to challenge convention with innovative ideas that shape environmental and operator safe working practices.

With safety at the heart of Carbis Loadtec's business strategy, this product mitigates the danger facing operators. Carbis Loadtec has worked closely with its customers for more than 20 years to bring advanced fall prevention and tanker loading solutions to a receptive audience. Many of the solutions, sold 20 years ago, are still regarded as cutting edge by most global customers.

But, as with all things, different factors affect the working environment. Increasingly, the safety of employees is, paramount. The latest generation of tanker loading systems can be supplied as full or semi-automatic. This is not just the batching and control. It extends to zero manual handling or vigilance. The only current caveat is the need to lift a manlid by hand. But if tasked to the driver, the plant will start to save from day one.

This will appeal to companies who are already handling dangerous liquids in unfavourable situations. It is for companies who have recognised the hazards and are considering buying sophisticated arms or, possibly, remote controlled arms. It is for companies who have multiple loading racks scattered around the world and burgeoning operational costs, risks and insurance premiums.

Autoload® is an intelligent loading arm that recognises an open manhole, moves to it, inserts, self-checks and loads. On completion it will self-check/purge and then park, with no operator involvement. Vapour recovery and all instrumentation can be included to whichever level of scrutiny the client wants.

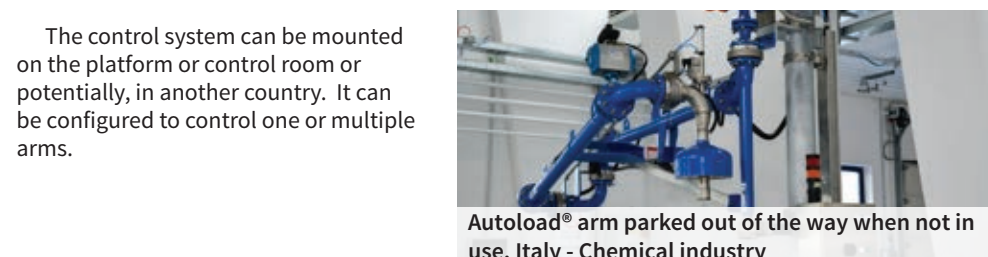
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4 x IBC drums being automatically loaded with up to 4 different products - Italy - Chemical Industry



Autoload® PTFE lined IBC loading arm, electrically actuated with control valves and Titanium Drop pipe with anti-drip valve for clean loading. - Italy - Chemical industry



Autoload® arm parked out of the way when not in use. Italy - Chemical industry



Autoload® Top loading arm and Control Panel



Example of a control panel for the Autoload® arm

The arm illustrated is filling four IBC's with a variety of liquids from an overhead automated manifold.

Due to the corrosivity of the liquids, the arm is carbon steel with PTFE lining and has a titanium drop pipe with integral anti-drip valve.

The operator selects which IBC is filled with which liquid, using the touch screen interface and then presses "Start".

The arm finds each tank opening in the desired sequence and discharges the preferred liquid without further human

contact.

On completion, the arm will return to the parking point automatically. The HMI can be configured for any language.

**Explore automation options for your application**

**Contact Carbis Loadtec**  
+44 (0) 1303 81 3030



3D Printed Cone with multiple sensors for control and positioning of the Autoload® arm



# Tanker Loading Arms Bottom Loading

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Bottom Loading Arm for rear tanker connection

Petroleum/fuel tanker filling via low level connections provides operators with the potential to load multiple compartments simultaneously as well as having automatic high level alarms for each compartment

Carbis Loadtec supplies high quality and durable systems with long warranties that will give up to six liquid arms and one vapour arm per bay. Combined with our API coupler range we provide loading arms as stand-alone products, or along with our meter skid systems we provide packaged solutions for tanker filling working to all recognised design and functional standards.

The bottom loading arms are fitted with spring cylinders which allow easy vertical position adjustment and incorporate our specially made composite hose for long life

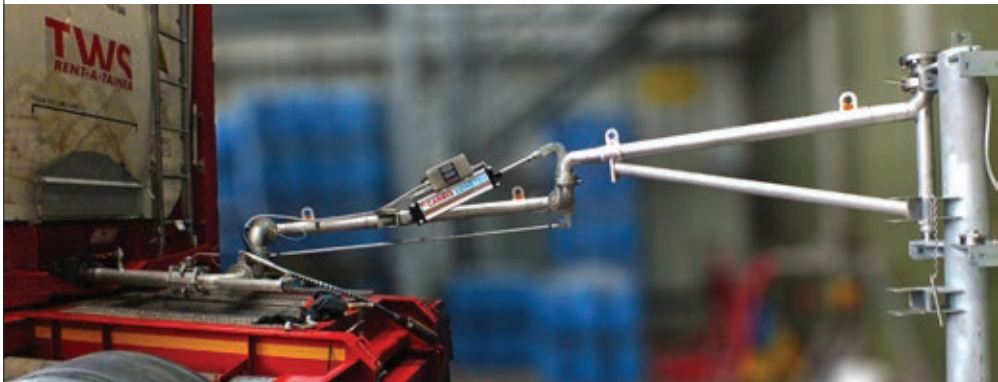
and chemical resistance.

The arms can optionally be fitted with breakaway couplings when required.

The standard configuration bottom un/loading arm with five swivels has been a dependable, safe and clean method for tanker fill/discharge for many years. Experience has shown that if the tanker connection arm is fitted with high weight components such as a ball valve or breakaway coupling, the arm can

be difficult to manoeuvre and handle.

To prevent this and ensure that tanker loading is a one-man operation, Carbis Loadtec provides a six swivel arm design. The arm is fitted with six swivels for complete three axis movement of the tanker connection allowing for tanker height changes during fill/discharge, while keeping the loading arm connection to the tanker parallel to avoid stressing the tanker connections.



Pneumatically balanced 6 swivel Stainless Steel bottom loading arm - UK - Chemical Industry



## Did you know?

### The lighter, the better

The combined weight of a 4-metre DN80 chemical hose, dry break coupler and full load of liquid is approximately 50kg. The weight of a fully laden bottom loading arm is 0kg. Which would you prefer to handle?



Multiple bottom hose loading arms with crossover for fuels loading - Iceland - Fuels Industry

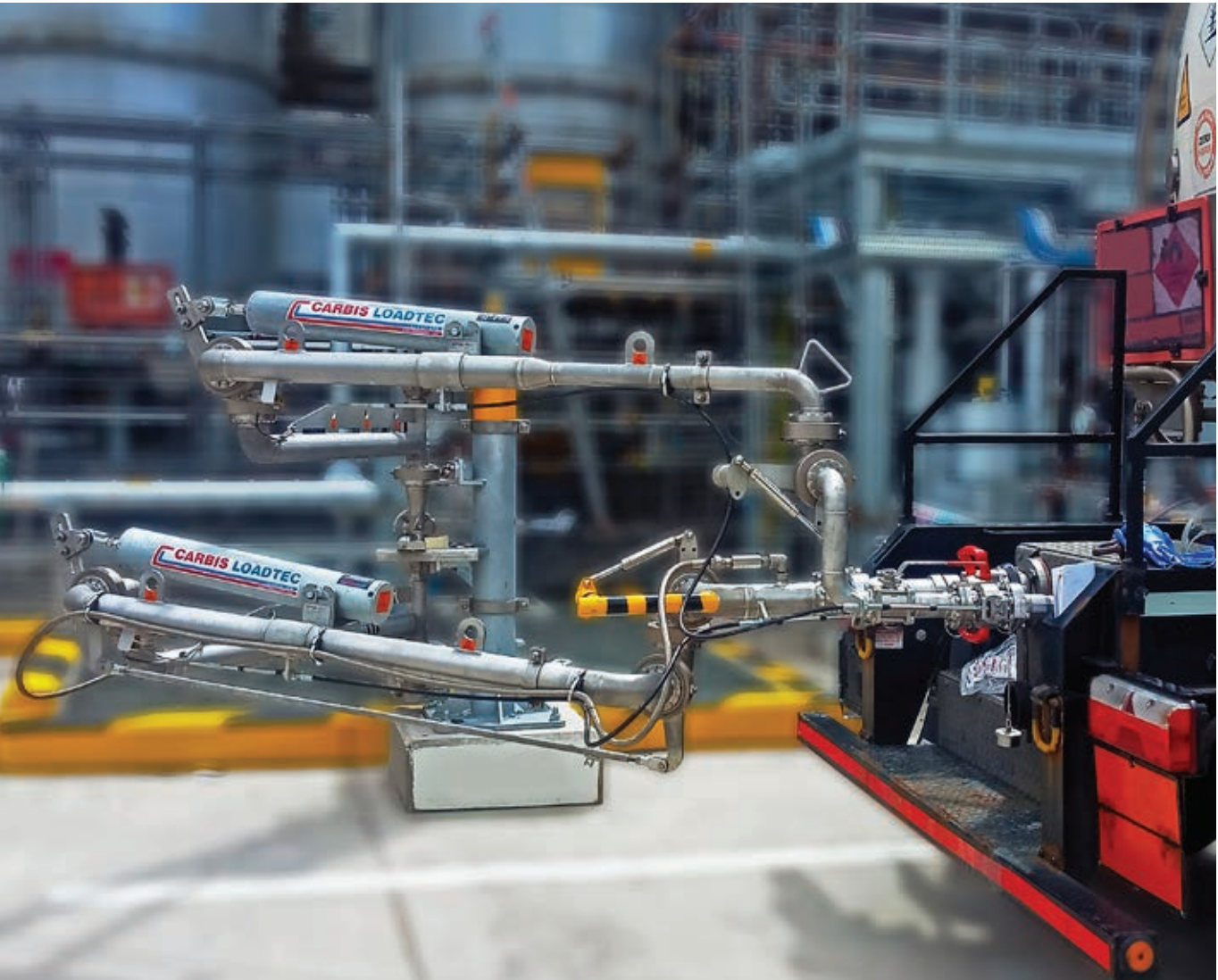


Orange API coupler with Aluminium Emergency Breakaway Coupler for drive away protection



# Tanker Loading Arms Bottom Loading Station

Telephone: +44 (0) 1303 81 3030 / Email: info@carbisloadtec.com / For technical data, please visit www.carbisloadtec.com



LA450 Bottom Loading Station with Vapour Arm

This type of loading arm is especially designed to transfer liquids and gases where vapour return is necessary. It is suitable for the bottom loading/unloading of road or rail tankers with flange connections or via a coupling. The loading arm has a long reach and is suitable for applications where the tanker connection flange cannot be accurately positioned

Because of the robust and high quality design of the swivel joints and the precise loading arm balancing, handling of the loading arm is very easy. Recent developments have allowed for six swivels to be used in each arm. This gives true three axis movement at the tanker

connection and makes handling the arm with valves or accessories effortless.

The arms can be designed to connect to side and/or rear of the tanker and also cross over to suit the configuration of the tanker connections.

## Did you know?

### Avoid catastrophic losses

The effect of an unplanned tanker departure while connected to the loading lines can be catastrophic, both in terms of human and production loss. It is far easier to fit emergency release couplers into the loading and vapour arms than to take a cumulative daily risk.

# Tanker Loading Arms Swivel Joints

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For pipe articulation while coping with expansion, vibration or just the simple need to move out of the way. Swivel joints provide an increasingly popular solution as companies move away from hose lines and require the integrity of a pipe with the flexibility of a hose

The Carbis Loadtec SJ400 swivel joint is the key element of our loading arm. It's design provides very high integrity and moment load because the ball race diameter is significantly larger than the bore size of the pipe. We use a single ball race where many other manufacturers need two ball races to provide the same level of strength. Added to this, the single ball race gives the swivel a very low profile and means that the arm is designed to be compact which is especially important when emptying tankers and gravity drainage is required.

## Did you know?

### Tried and tested

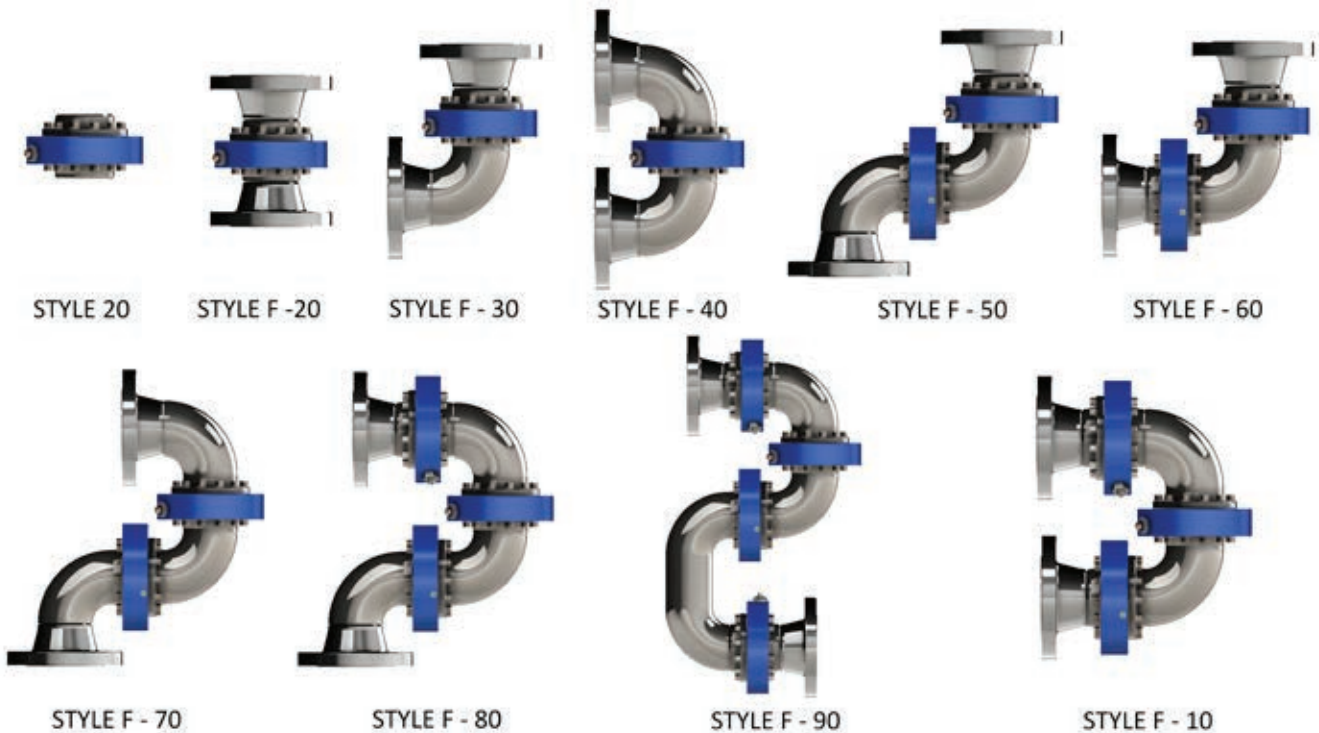
Carbis Loadtec sandwich style swivel joints come with a five-year warranty. The durability and flow characteristics of the Carbis Loadtec SJ410 swivel are best in class.



Carbis Loadtec SJ410 single ball race swivel joint

The design of the swivel joint means that the only parts in contact with the fluid path are two flanges and the seal. The flanges are matched to the pipeline material, allowing us to manufacture the loading arms to suit any liquid application.

Swivels are available from 2" (DN50) to 6" (DN150).





# Packaged Solutions

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10m VELD pneumatically powered, with top loading and bottom unloading arms, with duty and standby metering skid built into weather proof container subject to extreme sub-zero temperatures. Loading and unloading Artic Diesel in remote locations. Russia- Fuel industry

Carbis Loadtec has developed its portfolio and experience to provide fully integrated solutions to customer problems

By working with world class product manufacturers we have developed modular skid systems to provide repeatable and expandable packages. These incorporate all necessary metering, loading, access and piping systems. The systems are designed to be brought to site as skids or loose items and erected on a prepared base. Simple piping connections and junction boxes allow the systems to be powered up quickly and easily, especially useful in remote areas or where large scale development is required quickly to all accepted European standards of manufacture and certification.

Huge cost savings are possible when compared to traditional “stick built” methods. Systems can be designed to cater for single point loading stations through to large multiple station terminals. These can incorporate the terminal control



Transloading skid used to transfer product from rail cars direct to road tankers with no intermediate storage facility



In house Design/Drawing/Project Management

systems, stock control and client billing at point of sale. Weighbridges can also be added as a check weight facility.

Carbis Loadtec also undertakes a number of FEED Contracts for some



Bottom fuels loading skid with bottom hose loading arm, meter and batch controller - Italy - Fuel industry

significant and prominent major engineering houses. This allows the client to concentrate on other issues while Carbis Loadtec takes care of the complete terminal loading systems.

# Meter Skid Solutions

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In combination with our loading arms and fall prevention, Carbis Loadtec are meeting the needs of bulk plant and major terminals seeking safe, clean and cost effective tanker charging and discharging facilities

The growth in turnkey system solutions for tanker loading has increased over the last few years. The expansion of oil exploration and distribution in remote parts of the world means that customers need to buy a system that is reliable. Reducing site time and eliminating the variable quality of locally fabricated goods means that operators can buy skid systems to meet their exact and future needs.

Our skids are built from high quality fluid transfer products and their outstanding quality and robust reputation is proven around the world.

Carbis Loadtec is pleased to be able to offer these systems as part of their portfolio and would welcome the opportunity to discuss your metering needs.

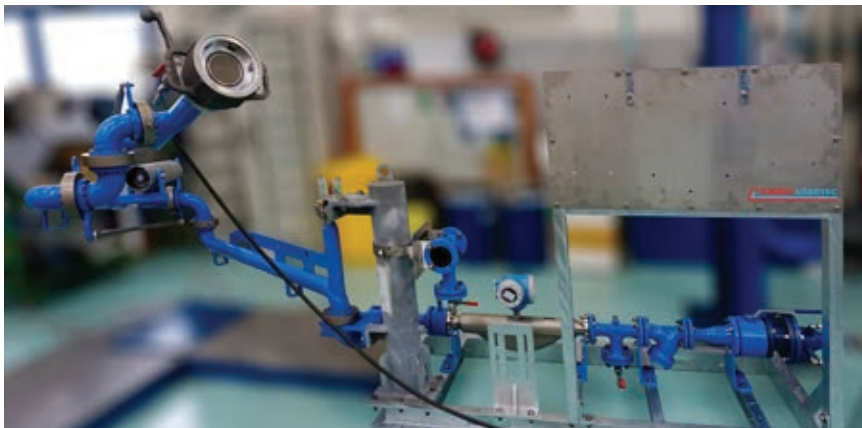
## Did you know?

### Hot or cold?

Carbis Loadtec have supplied meter skids to work in the frozen north of Russia to the steamy heat of equatorial Africa. Our packages are custom designed to suit our client's criteria and climate conditions.



20 x Top loading skids with duty and standby metering system with batch controllers - Bangladesh - Fuels Industry



Bottom loading skid with meter, filter and controller - UK - Renewable Fuels industry



UAN, batch control, loading skid with connection to terminal automation system



Additive Injection skid with duty and standby metering - UK - Fuels Industry



# Cryogenic and LNG Loading Arms

Telephone: +44 (0) 1303 81 3030 / Email: info@carbisloadtec.com / For technical data, please visit [www.carbisloadtec.com](http://www.carbisloadtec.com)

Liquified Natural Gas - LNG - and Ethylene are classed as cryogenic liquids operating at temperatures below minus 100°C with unique challenges and safety requirements for both loading and unloading.

LA700 Series – Cryogenic Loading Station – Is used to load / unload cryogenic liquids (i.e. LNG) to road / rail tankers. The loading station can be designed for lateral and rear loading. When combined with our LNG Metering System, it offers unrivalled excellence in safety and liquid management.

Why use Carbis Loadtec CRYOLOAD?

- Easy ergonomics and handling by a single operator
- Long range loading to rear and side connections
- Compact balancing system
- Insulated handles for cryogenic application

Unique Swivel joints to EN1474 with:

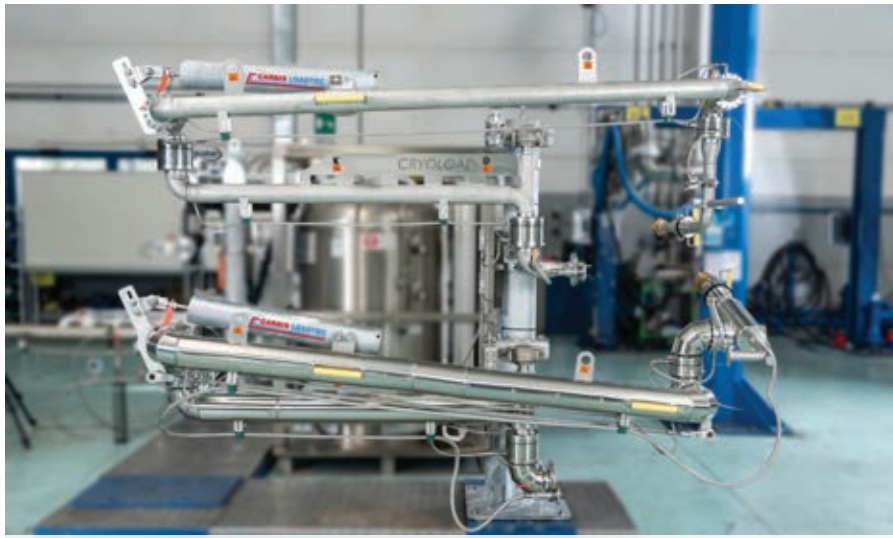
- backup seals and leak detection for high reliability
- seals in Ultra High Molecular Weight PE for high reliability
- minimum rotation resistance for easy operation
- replaceable product seals and bearing module



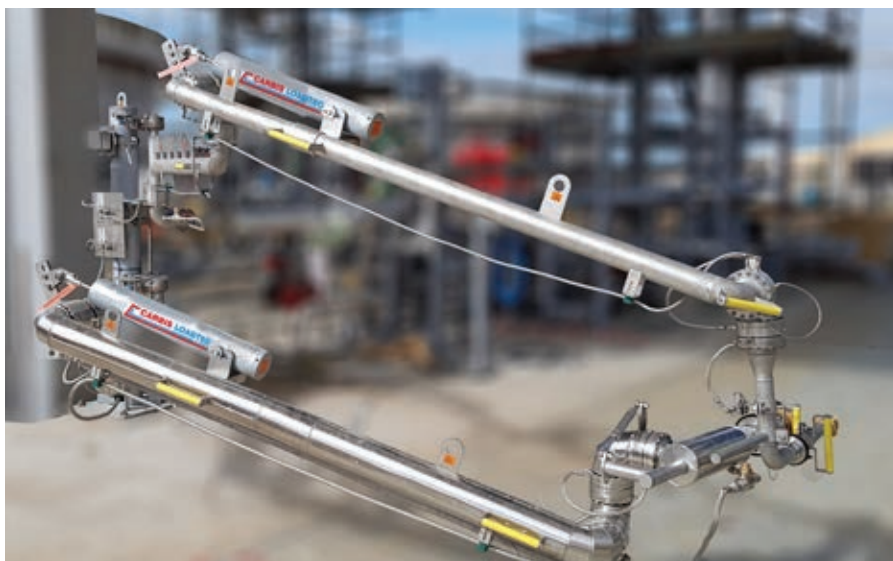
Cryoload swivels under load during FAT



Cryoload swivels after testing



Cryoload twin bottom loading arms for use on LNG loading or unloading during FAT



Cryoload twin bottom loading arms for use on LNG loading or unloading during SAT



Cryoload twin bottom loading arms for use on LNG loading or unloading ready for tankers

# Cryogenic and LNG Meter Skid Systems

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The LNG market is growing around the globe. The liquid is both challenging to handle and store. We take the issues of tanker loading and liquid measurement off your hands and deliver a package, customised to your exact needs and space constraints. Bolt down, connect the flanges and get pumping!

- Precise and consistent measurement for custody transfer, in accordance with API (American Petroleum Institute) or MID (Measuring Instrument Directive).
- Easy and reliable communication with your Terminal Automation System and DCS.
- Get your plant up and running on time and on budget.
- LNG Metering Skid. Customised to meet your exact needs.
- Single or Dual sided
- Straight Vapour Return or BOG metering.
- Integral LA700 Loading Station
- Constructed for shipping to anywhere in the world, set up for immediate deployment and Site Acceptance test



Dual bays LNG metering skid frame mounted with mass flow measurement.

## Did you know?

### What is boil-off gas (BOG)?

While the tanks on an LNG carrier are designed to stay cool, they cannot provide perfect insulation against warming. Heat slowly affects the tanks, which can cause the LNG inside to evaporate and produces a substance known as boil-off gas (BOG).

Natural gas remains liquefied by staying at a consistent pressure, but when boil-off occurs and it returns to gas, the larger volume of gas will increase the tank pressure. While the tanks are designed to handle the rise over short distances, prolonged pressure increases cannot be managed effectively and require alternative solutions.

### Handling the pressure

To relieve the pressure in LNG tanks, BOG can be re-liquefied, used as fuel or burned in a gasification unit.

Reliquefaction occurs when evaporated LNG is cooled and reverted back to its liquid state. However this presents its own problems. Reliquefaction requires a lot of equipment, meaning tanks become very large. The process is more practical for large land based liquefaction plants, where space is not as much of an issue.

### The challenge of LNG

Even when safely handled, BOG offers other challenges. As BOG develops, the more volatile components in LNG – nitrogen and methane – boil-off first. This changes the composition and quality of the LNG over time in a process known as ageing – displaying how even the smallest change in LNG can have major effects.

It is crucial that LNG is accurately measured and managed during its cooling, storage and transportation



# Storage Tank Equipment Floating Suctions

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Floating suction are used for safe and clean liquid draw off from storage tanks where liquids need to be uncontaminated by water or solids

Suspended by the surface of the liquid, the inlet to the pump is held in the clean dense product regardless of the constantly changing liquid level. For tanks with floating roofs, large bore roof skimmers move with the roof to drain away unwanted liquid.

Floating suction come in a range of designs to suit buried, above ground, semi-buried and vertical tanks as well as for use with articulated drainage units with a floating ceiling/roof.

Carbis Loadtec floating suction range in size from 2" to 36" and can also be ganged together to form a dual suction facility equivalent to 48" inlet.

Materials are generally stainless steel, aluminium and carbon steel.



2 x 20" x 15m long Stainless Steel Floating Suctions inside a storage tank ready for Jet Fuel - UK - Aviation

# Electrical Grounding and Earthing Monitoring

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Static generated by fast flowing liquids in pipes can be very dangerous. The need to eliminate static build up is proven, and in many cases, mandatory

These systems can give a simple, yet effective, earth continuity for drums and road tankers. The road tanker version monitors the condition of the earth signal and provides a permissive signal for the process operation. Deprivation of the earth continuity or attempts to avoid use of the earthing system will eliminate the permissive signal, stopping the process.

**Did you know?**

**Static electricity as a hazard**

Although static electricity is generally regarded as a nuisance, in the hazardous process industries, its effects can be devastating. Discharges of static electricity have been identified as the ignition source for a broad range of processes that cut right across a wide selection of industry groups.



An example set up of tanker earthing with tanker clamp connected to its parking adapter.



# Accessories Emergency Release Couplings

Telephone: +44 (0) 1303 81 3030 / Email: info@carbisloadtec.com / For technical data, please visit www.carbisloadtec.com

Emergency Release Couplings provide added assurance to sites by ensuring that in the event of an unplanned drive away, product spillage is eliminated and equipment is not damaged.

The **VA 400** emergency release coupling is usually installed on fixed pipe bottom loading/unloading systems LA300 and LA400 series. It is designed to prevent spillage in the event of unplanned tanker movement during loading or unloading.

The movement of the road or rail tanker during loading/unloading causes a pull force on the cable which removes the shear bolt from the retaining block; the

collar opens and the valve separates by the combined action of the springs and the movement of the truck. The coupling will part before damage occurs to the loading arm and will close off at each end to secure the liquid in the line.

This system provides a robust and dependable safety backup with premium quality components and design.



ERC - Emergency Release Coupler (Cable Pull)

### Technical specifications:

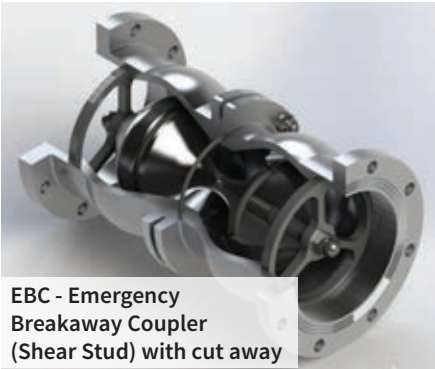
- Design pressure 40 bar
- Test pressure 60 bar
- Working pressure 18 bar
- Valve body Stainless steel
- Poppets Stainless steel
- Collars and retaining block Stainless steel
- Gaskets NBR: (EPDM on request)
- Opening force setting 200-400 Kg for shear bolt breakage
- Maximum load 150 Kg
- Fluid compatibility LPG, chemicals, hydrocarbons.

The **VA 410** emergency release coupling with Breakaway Coupling is usually installed on bottom hose loading/unloading arms LA210 and LA250 series. It is designed to prevent spillage in the event of an unplanned tanker movement during loading or unloading.

The movement of the road or rail tanker during loading/unloading causes the 3 shear pins to break and the consequent separation of the two halves of the valve; instantly, the two poppets close the flow of liquid on both sides of the valve.

This instantaneous closure ensures product loss and subsequent pollution is reduced to a minimum.

This low-cost system is a simple addition and adds peace of mind to any petroleum loading system.



EBC - Emergency Breakaway Coupler (Shear Stud) with cut away



### Technical specifications:

- Design pressure 10 bar
- Testing pressure 15 bar
- Design Temperature -15°C / +65°C
- Valve Flanges 4" TTMA (other on request)
- Valve body and Poppets Aluminum Alloy
- Shear Pins Stainless steel
- Seals Viton (Other on request)
- Opening vertical force setting 2500 kg
- Max bending moment 200kgm
- Max vertical weight setting 1250 kg
- Max flow rate 2500LPM
- Head loss 0.17 Bar @ 2500LPM
- Shear Pins tightening torque 12Nm (dry)
- Fluid compatibility Chemicals, hydrocarbons.

# Accessories Quick Connect Couplings

Telephone: +44 (0) 1303 81 3030 / Email: info@carbisloadtec.com / For technical data, please visit www.carbisloadtec.com



A selection of OPW Lok Products available from Carbis Loadtec

Carbis Loadtec distributes and holds stock of OPW couplings and spares.

OPW Engineered Systems offers a comprehensive line of quick disconnect products in a wide variety of sizes and configurations. Kamlok® is the world's most popular cam and groove. The name is synonymous with quick disconnects and has set the industry standard for safety and ease of use. Autolok® quick disconnects utilize a self-locking system to provide an added level of safety.

Both Kamlok® and Autolok® offer the exclusive Twin-Kam™ feature, a patented system that holds the adaptor more securely for increased protection against accidental release. These popular couplers and adapters are the industry's safest, sturdiest and quickest coupler systems on the market.



3" Drylok coupler

Dry disconnect couplings have been proven as a successful technology to help protect workers and the environment in the transfer of hazardous materials. Our dry disconnect couplers ensure against accidental spillage of liquids. If your product is corrosive, toxic, caustic or otherwise harmful, OPW's family of high-performance dry disconnect couplings help reduce the hazards associated with the transfer of these products.



2" Autolok Coupler





Installation of VEP Cage section



Drilling Floor ready for platform column install

## Installation

Carbis Loadtec is able to offer an installation service; we will send out qualified engineers to ensure your new equipment is installed correctly.

## Maintenance

Carbis Loadtec is able to provide service engineers to carry out maintenance as required or on a contract basis.

## Spares

Although all Carbis Loadtec products come with long warranties and unrivalled performance, sometimes accidents happen and repairs are needed. Carbis Loadtec offer a comprehensive collection of spare parts for all supplied products, both old and new.

## Customer's testimonial

"I was happy with Carbis Loadtec as they delivered a complete solution which met all of our needs. The project went smoothly; it was all on time. When we started looking at the options, the range of solutions went from one extreme to the other... Having a hybrid solution met all our needs without breaking the bank."

**Jim Park, New Britain Oils**



Preparation for lift of VEP platform inside customer building



Balance adjustment for loading arm



Function check for bottom hose loading arm



Lifting a VEP platform VEP cage lift



Installation of 3 arm bottom loading skid



Running SS tubing for skid installation



Preparation for lift of VEP cage inside customer building







### Vertically Elevating Platform



This system provides absolute safety for operators working on tanker tops by providing a walk surface over the entire tanker top that can be simply lifted up where necessary to provide access to the tanker connections. Handling Loading Arms and Hoses just became a lot easier.

### Tilting Vertically Elevating Platform



The tilting system is the pinnacle of tanker top safe operations. It raises and lowers vertically through a 1.5m range and can tilt each end to correct for sloping tanker tops. It can be custom designed to suit a range of lengths and widths. Supplied fully galvanised as standard or painted according to customer specification.

### Custom Meter Skid Systems



Carbis Loadtec supply packaged metering systems to provide the customer with point of transfer volumetric or mass metering of liquids. The skids can also have pumps included and be provided as mobile units if required. The range of materials and methods of metering are configured to suit customer requirements.

### Mobile Access Carts



In cases where infrequent access is required or tanker positions are not fixed, the Mobile Access Cart will provide safe access to tanker tops of varying height. Ideally used for sample taking and inspection of bond seals, the MAC has foam filled 16" wheels, an aluminium cage and galvanised steel chassis.

### Tanker Loading Arms



Carbis Loadtec have an extensive range of road and rail tanker loading and unloading arms. These range from standard API configuration bottom loaders to PTFE lined, heated and insulated arms with vapour recovery. We can provide arms for almost every liquid, ensuring safe and clean bulk transfer operations.

### Autoload® Automatic Loading Arms



The future of tank truck loading. Completely robotic, operator-free movement which leads to definable payback and maintenance savings. The Autoload® arm is capable of handling all liquids and is custom designed to your specification.

### Fixed Access Platforms and Stairs



Safe and robust access to tanker tops for operator convenience. A customer driven specification provides an inexpensive and safe system for inspection or loading operations.

### Track Mounted Folding Stairs



This system utilises a unique track and barrier system to allow a folding star to traverse over any distance, providing flexible access onto tanker tops where long loading racks are used.

### Cryogenic and LNG



These liquids are challenging to handle and store. We take the issues of tanker loading and liquid measurement off your hands and deliver a package, customised to your exact needs and space constraints.

### Electronic Earthing & Grounding



Intelligent Earth Monitoring Systems provide an extra layer of assurance. If the truck is not correctly earthed or if the clamp is dislodged, the permissive signal is lost and the load stops.

### Safety Breakaway Couplings



Mitigate against an un-planned drive-away during liquid transfer operations. The breakaway coupling will part before damage occurs to the hose or loading arm and will seal the line, preventing spillage.

### Storage Tank Floating Suction Units



Floating suction units are used in storage tanks to allow suction of the product near to the liquid surface level, avoiding intake of water or sediments that accumulate at the bottom of a tank.