MARINE LOADING SYSTEMS

EMCO WHEATON®
An Ingersoll Rand Business

LEAD SUCCESSFUL PROJECTS WITH MAXIMUM SAFETY & EFFICIENCY LEVELS

Turn to the trusted Market Leader!

REQUEST A QUOTE

CONTENTS

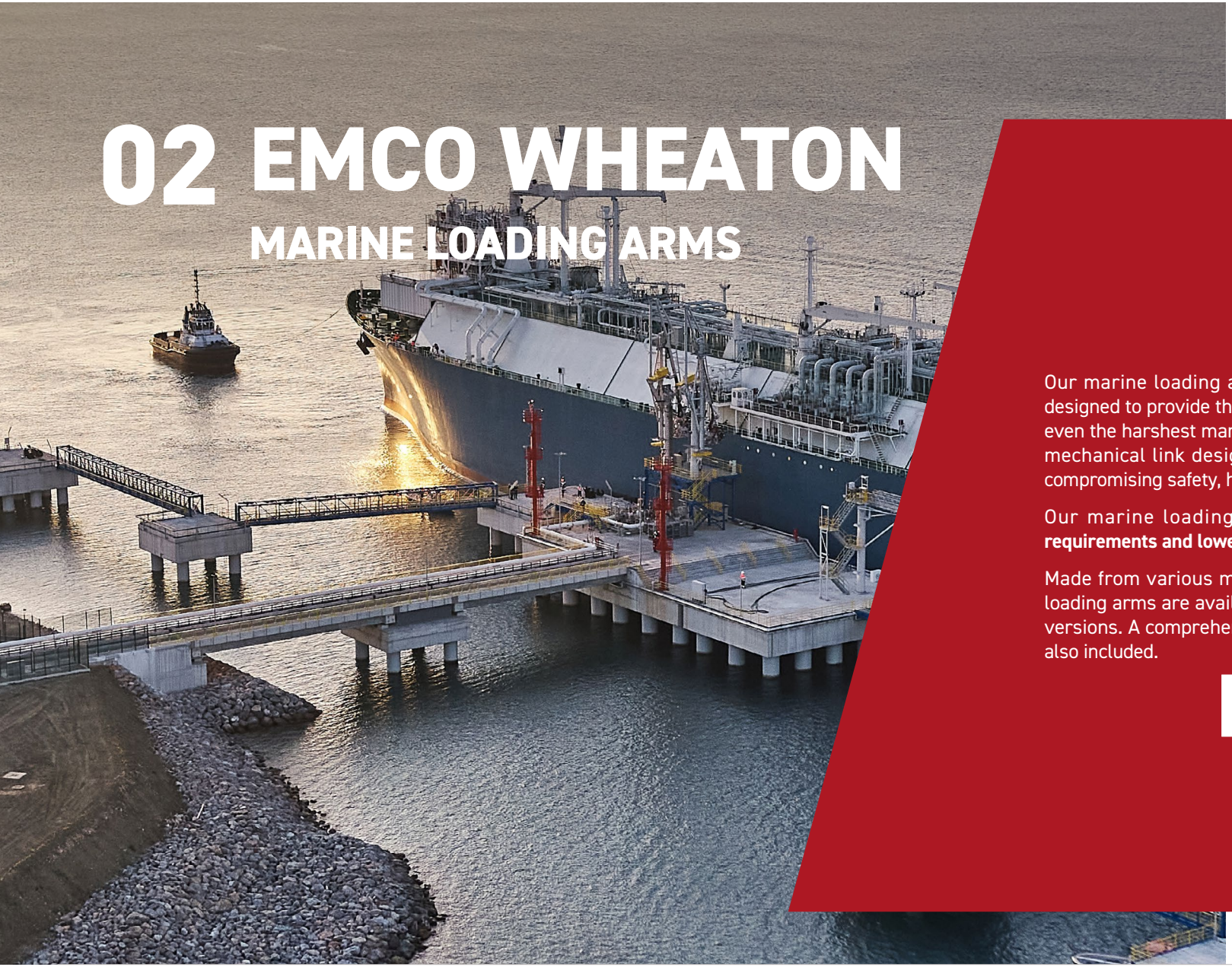
01 INTRODUCTION

For over 100 years, Emco Wheaton has been synonymous with **premium loading systems.**

Engineered for **safety and efficiency**, our systems seamlessly transfer diverse liquid and gaseous products. We manufacture our loading arms at our plant in Kirchhain, Germany, adhering to the highest quality standards, which positions us as market leader.

Our dedication to top-tier quality and customer satisfaction has made us a trusted ally in the oil & gas, transportation, and chemical industries. By choosing Emco Wheaton, our customers know that they are acquiring the **finest products from a globally trusted brand.**

LEARN MORE



02 EMCO WHEATON

MARINE LOADING ARMS

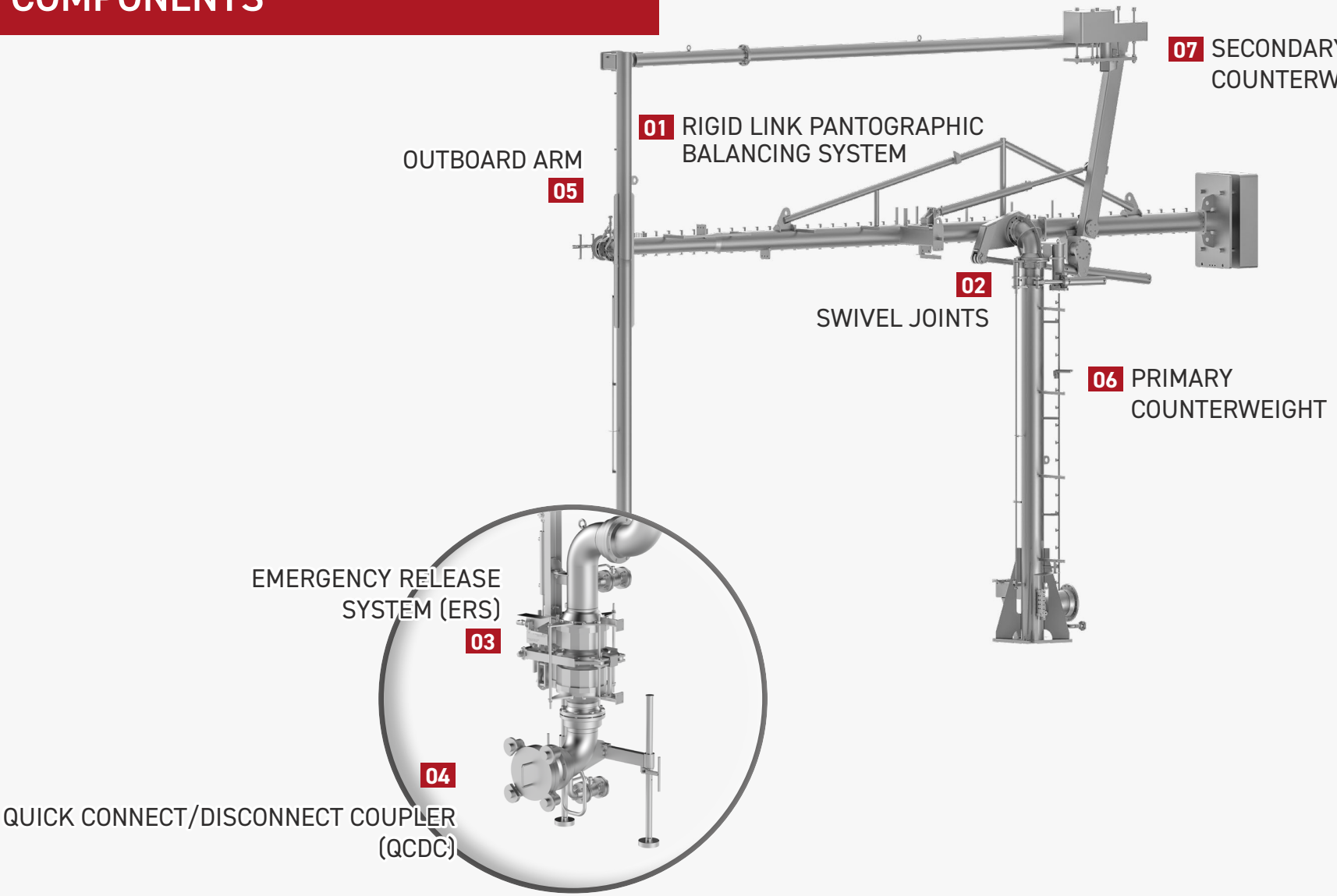
Our marine loading arms feature **heavy-duty design**. They are designed to provide the **highest levels of performance and safety** in even the harshest marine environments. The pantograph balanced, mechanical link design provides stability and strength without compromising safety, handling or ease of use.

Our marine loading arms help you **minimize maintenance requirements and lower your operating costs.**

Made from various materials, Emco Wheaton's range of marine loading arms are available in either manual or hydraulic operation versions. A comprehensive range of accessories and equipment is also included.

LEARN MORE

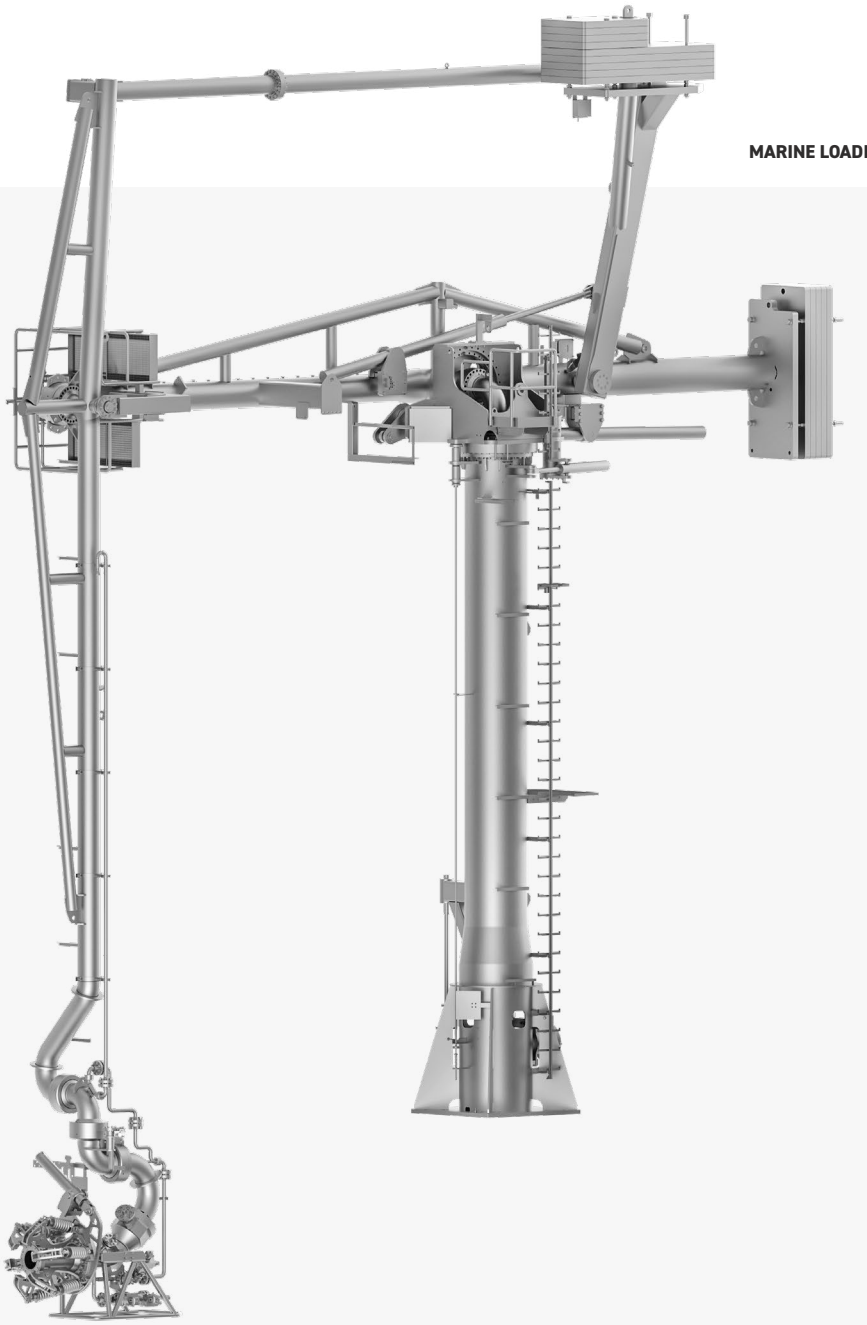
03 | EMCO WHEATON MARINE LOADING ARM COMPONENTS



04 | EMCO WHEATON MARINE LOADING ARMS ADVANTAGES

Emco Wheaton marine loading arms are robust and flexible, which means that they offer a number of benefits for your company:

- High Quality
- Highly Engineered
- Maximum Safety
- Easy Handling
- Lowest Possible Jetty Loads
- Complying with International Standards
- Easy Maintenance
- Full Project Management Support
- Durability: Piston rods made of stainless steel plus chrome plating / (optional ceramic plating).
- Minimum Total Cost of Ownership (TCO) and Maintenance Costs



05 | APPLICATIONS

Emco Wheaton offers a range of marine loading arms and accessories that are tailored to meet the rigorous demands of various applications.

Manufactured from the highest quality materials, our marine loading arms and accessories are designed to maximize safety and increase efficiency, while reducing maintenance costs and providing the lowest possible Total Cost of Ownership.

Working together, our products help our customers safely and efficiently to load and unload a wide variety of liquid and gaseous products including:

CRYOGENICS / LNG | HIGH PRESSURE GAS / CNG (150 BARG) | LPG / NGL | PETROCHEMICALS

OIL | AMMONIA / HYDROGEN | CHEMICALS | CO_2, CCS

*List of typical liquids and gaseous products: LNG, LPG / NGL, High Pressure Gas / CNG (150 bar), Diesel, Heavy Crude Oil, White Oil, Naptha, Ammonia (Hydrogen), Ethanol, Ethylene, Alcohol, Sulfuric Acid, Sodium Hydroxide, Hydrochloric Acid, Oil, Butane, Propane, Molten Sulphur, Acids, Solvents, Sodium Hydroxide, Nitric, Hydrofluoric, Fatty Acid, Resins, Styrene, Propylene, Aqua ammonia, Pygas, Chlorine.

CRYOGENICS / LNG

MARINE LOADING ARMS

The Emco Wheaton LNG marine loading arm has been specifically designed for LNG and other cryogenic fluids.

Featuring a structure supporting design that is compatible with a range of ancillary equipment and accessories, the Emco Wheaton LNG marine loading arm maximizes safety and ease of use while minimizing maintenance costs.

DESIGNED FOR SAFETY

The LNG design includes a support structure for standpost, primary and secondary arm that separates any mechanical loads imposed to the product pipe, except deadweight and internal pressure loads. This ensures optimum operational safety and lowest Total Cost of Ownership (TCO).

LEARN MORE

HIGH PRESSURE GAS / CNG (150 BARG)

MARINE LOADING ARMS

Emco Wheaton High Pressure Marine Loading Arms provide **safe transfer of Compressed Natural Gas between Floating Storage and Regasification Units (FSRUs) and the onshore gas grid and support the fast utilization of LNG for stabilizing the national natural gas distribution system.**

Emco Wheaton's selection of high pressure Marine Loading Arms are designed for the transfer of CNG with **maximum operational safety, highest reliability and minimized operational cost (Total Cost of Ownership, TCO).**

Emco Wheaton is today's market leader manufacturer of high pressure Compressed Natural Gas (CNG) Marine Loading Arms with an installed base of 80% of the world's CNG loading arms.

LEARN MORE

EMCO WHEATON®
An Ingersoll Rand Business

REQUEST A QUOTE

www.emcowheaton.com
Emco Wheaton | www.facebook.com/EmcoWheaton

PETROCHEMICAL

MARINE LOADING ARMS

Emco Wheaton petrochemical marine loading arms play a critical role in the safe and efficient transfer of bulk liquid petrochemicals and hydrocarbons between vessels and shore-based facilities.

In addition, petrochemical marine loading arms are designed with safety features such as emergency release systems. They are also constructed with materials that can withstand harsh marine environments and corrosive petrochemicals.

Our products enable our customers to safely and efficiently load and unload a wide range of petroleum products, including:

- Gasoline/Petrol
- Diesel
- Aviation fuel
- Heavy fuel oil
- Liquefied petroleum gas (LPG)
- Petrochemical feedstock
- Biofuels

LEARN MORE

AMMONIA / HYDROGEN

Emco Wheaton ammonia loading arms have ensured the safe transfer of ammonia from storage vessels, tanks, or pipelines to vehicles, railcars, or vessels for over 40 years.

Ammonia as hydrogen carrier is a well-known technology since ammonia as a chemical is regularly transported for many years by vessel, truck or railcar. Emco Wheaton has a wide experience in ammonia industry.

Emco Wheaton joins the Hydrogen Revolution

Our Research and development (R&D) department works on developing new products with the goal of providing innovative solutions that achieve higher efficiency, safety and sustainability levels. Our R&D department is currently working on the design of a specific hydrogen loading arm to meet the increasing demand of hydrogen in the market as a clean and versatile energy source.

LEARN MORE

CHEMICAL

MARINE LOADING ARMS

Engineered to **ensure zero leakage and minimal product loss and to safely and efficiently load or unload a variety of chemical products, including acids, solvents, and other hazardous materials.**

Emco Wheaton offers chemical marine loading arms with either a self-supporting or structured design. These loading arms can be operated manually or hydraulically and are equipped with a rigid link pantographic balancing system and a double counterweight system.

The chemical loading arm is available in a range of materials such as carbon steel and stainless steel, as well as options such as PTFE lined product piping for handling of highly corrosive fluid even at high temperatures. These are also available with vapor return lines, heating systems and insulations.

LEARN MORE

CO_2, CCS
MARINE LOADING ARMS

CO_2 (carbon dioxide) is a greenhouse gas that is released into the atmosphere by a variety of industrial processes including power generation, cement production and industrial manufacturing. One way to reduce the amount of CO_2 emitted into the atmosphere is to capture it at the source and store it in geological formations underground, a process known as carbon capture and storage (CCS).

Marine loading arms can be used for the loading and unloading of pressurized or liquefied CO_2 from and onto ships that transport the captured gas.

These marine loading arms are **designed specifically for handling CO_2 which can have unique properties and safety considerations.**

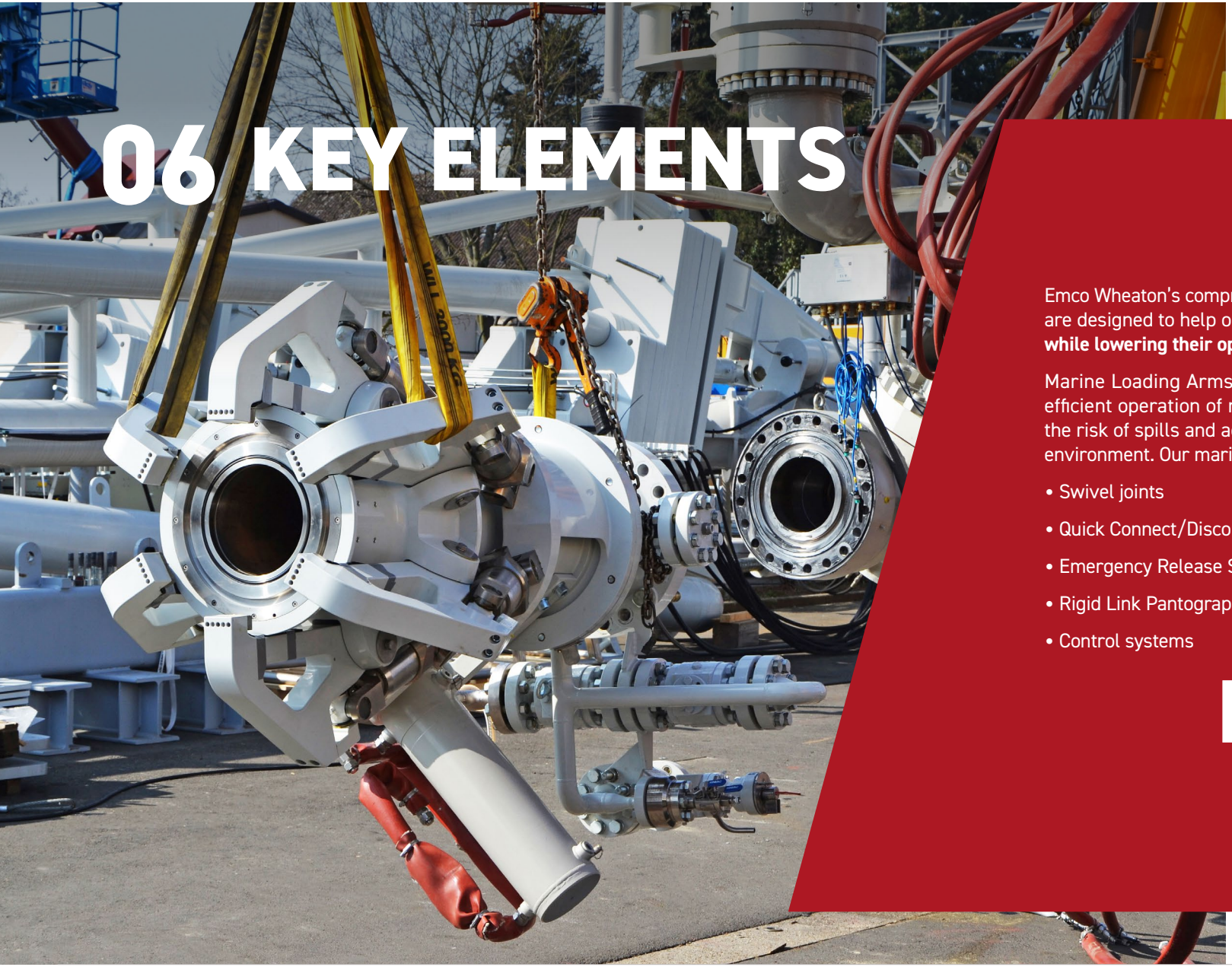
LEARN MORE

OTHER APPLICATIONS

TOTAL ENGINEERED TO YOUR APPLICATION

To fully comply with demanding specifications – **We partner with our customers, working closely with them to deliver a solution that is tailored to meet their specific demands, regardless of the industry or application.**

LEARN MORE



06 KEY ELEMENTS

Emco Wheaton's comprehensive range of accessories and equipment are designed to help our customers **maximize safety and efficiency, while lowering their operating costs.**

Marine Loading Arms components are essential for the safe and efficient operation of marine loading arms. They help to minimize the risk of spills and accidents, reduce product loss and protect the environment. Our marine loading arms components include:

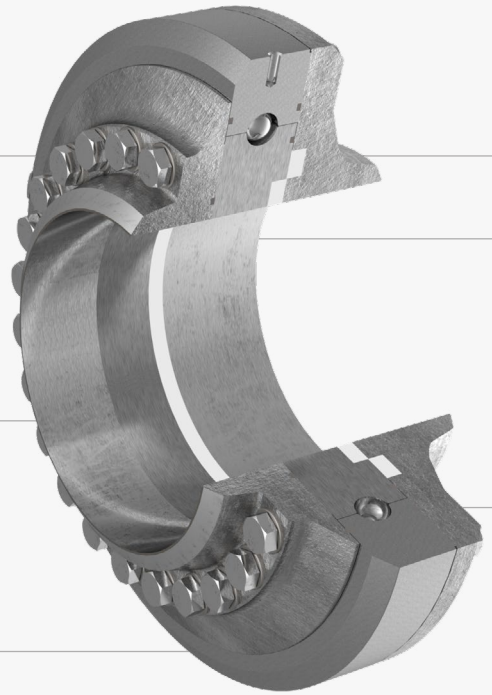
- Swivel joints
- Quick Connect/Disconnect Couplers
- Emergency Release System (ERS)
- Rigid Link Pantographic Balancing System
- Control systems

LEARN MORE

SWIVEL JOINTS

Emco Wheaton's range of swivel joints provide easy handling and maximize operational safety. Marine loading arms use swivel joints to provide a flexible connection between the ship and the pipeline, allowing for movement and adjustment as the ship or tanker moves with the waves and tides during loading/discharging.

Emco Wheaton's range of swivel joints is designed for a range of medium, heavy and specialist applications. They are capable of handling a variety of gases and fluids for any application.



Low Maintenance

Easy to replace seals (without disassembling the whole loading arm) even in self-supporting marine loading arms

Ensuring Compliance

Tested and approved according to **OCIMF and/or ISO 16904**

High Performance

Best-in-class performance in regard to **mechanical strength**

Safety

Double sealing design

Long Life Expectancy

Extended service life due to hardened and fine machined ball track

Light Design

Compact and lightweight design

LEARN MORE

MANUAL QC/DC COUPLER - EASY AND QUICK CONNECTION

The manual QC/DC coupler enables the marine loading arm to connect with the ship's manifold quickly and easily. The coupling process ensures a **safer operation that takes only a few seconds.** This manual Quick Connect/Disconnect Coupler is efficiently designed for transferring any type of liquid, including fuel, oil, and hazardous chemicals.
The Emco Wheaton manual QC/DC offers multiple benefits:

No Product Loss!

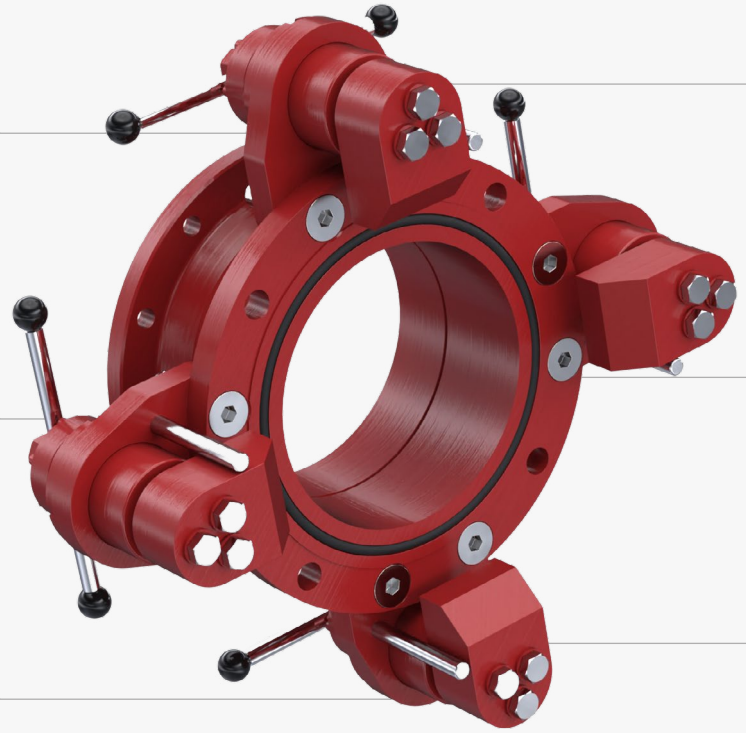
Superior design **prevents leakage** by sealing connections against vibration.

Maximum Safety

The coupler is always dependable and maintains a secure attachment to the tanker manifold, even in the event of power failure. The QCDC doesn't require any manual work from the operator at the manifolds, thus minimizing the risk to on site safety.

Adaptability

The coupler permits some flexibility by compensating for up to 5 mm of unevenness of the nominal mating flange surface, **simplifying operations without compromising security.**



Quality Control and Design Compliance

The QC/DC was designed and tested in accordance with the Oil Companies International Marine Forum (OCIMF) 4th Edition 2019 specification and adheres **to the highest industry standards.**

Easy and Quick Connection

The manual QC/DC is easily and quickly opened and closed. In the event of a power supply failure, the system will remain secure and the loading arm can be safely disconnected manually.

Longevity

The use of high quality materials ensures that **the coupler is durable and requires minimal maintenance.** The structure of the coupler is made of high yield strength steel, making it suitable for transferring any liquid. Additionally, the unit comes with a lightweight aluminium cover that can be carried without pressure.

Easily Opened and Closed with Regular Wrench

SPECIFICATIONS

- Manually operated
- Pressure rate: 150 lbs / 300 lbs
- Sizes: 6" to 20"
- Materials: ASTM / DIN carbon steel (clamps and mechanical parts), aluminium (cover), elastic O-ring
- Operating temperature: -50°C to +200°C (Other accessories available on request)

LEARN MORE

HYDRAULIC QC/DC COUPLER - THE TIME-SAVER

The hydraulic QC/DC coupler is used for easy connection of the marine loading arm with the ship's manifold. The coupling process is remotely controlled, allowing for a safer operation that lasts a few seconds.

When it comes to fluid loading, failure is not an option. We developed the **Quick Connect/Disconnect Coupler** to be the most efficient solution for transferring any type of liquid, including fuel, oil and hazardous chemicals.

Thanks to its proven, special design, the QC/DC offers multiple benefits:

No Product Loss!

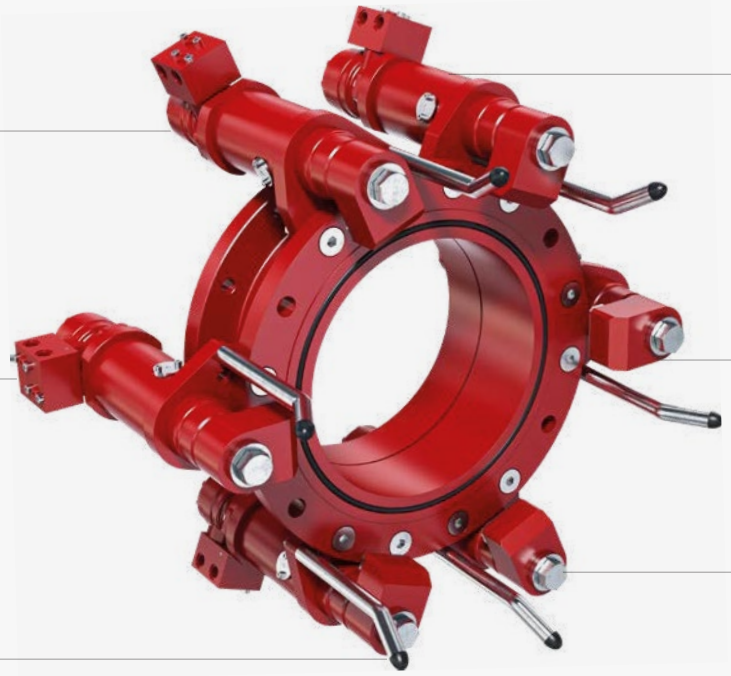
Superior design seals connections regardless of vibration, **protecting them from leakage.**

Safety

Always dependable, the coupler maintains secure attachment to tanker manifold even in the event of power failure. The QCDC doesn't require any manual work from the operator at the manifolds, thus minimizing the risk to on-site safety.

Resilience

The coupler permits some flexibility by compensating for up to 5 mm of unevenness of the nominal mating flange surface, **simplifying operations without compromising security.**



Ensuring compliance

The QC/DC was designed and tested in accordance with the OCIMF 4th Edition 2019 specification, and adheres to **the highest industry standards.**

Flexibility

If required, the QC/DC can be opened manually. This way, should the power supply fail, the system will remain secure **and the loading arm can be safely disconnected.**

Durability

High-quality materials ensure **longevity and reduce the need for maintenance almost to Zero.** The coupler's structure is built from high yield strength steel making it suitable for transferring any liquid. The unit is also supplied with no-pressure carrying lightweight aluminium-cover.

SPECIFICATIONS

- Pressure rate: 150 lbs / 300 lbs
- Sizes: 6" to 20"
- Materials: ASTM / DIN carbon steel (clamps and mechanical parts), aluminum (cover), elastic O-ring
- Operating temperature: -50°C to +200°C (Other accessories available on request)

LEARN MORE

MANUAL QCDC COUPLER FOR LNG

The manual QC/DC coupler enables the marine loading arm to connect with the ship's manifold quickly and easily.
The coupling process ensures a **safer operation that takes only a few minutes.**
This manual Quick Connect/Disconnect Coupler is efficiently designed for transferring for cryogenic products like LNG.
The Emco Wheaton manual QC/DC offers multiple benefits:

No Product Loss!

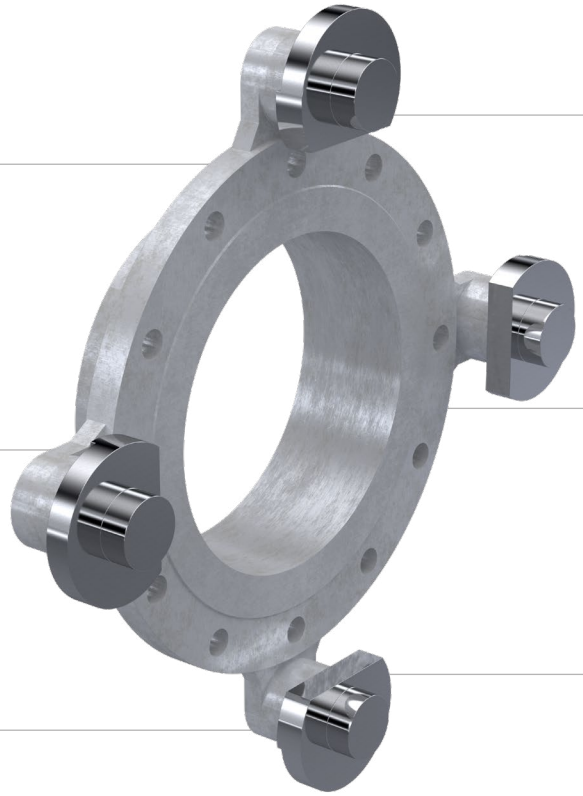
Superior design **prevents leakage** by sealing connections against vibration.

Maximum Safety

The coupler is always dependable and maintains a secure attachment to the tanker manifold, even in the event of power failure. The QCDC doesn't require any manual work from the operator at the manifolds, thus minimizing the risk to on site safety.

Adaptability

The coupler permits some flexibility by compensating for up to 5 mm of unevenness of the nominal mating flange surface, **simplifying operations without compromising security.**



Quality Control and Design Compliance

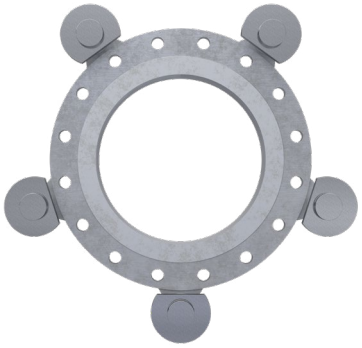
The QC/DC was designed and tested in accordance with the Oil Companies International Marine Forum (OCIMF) 4th Edition 2019 and iso 16094 specification and adheres **to the highest industry standards.**

Easy and Quick Connection

The manual QC/DC is easily and quickly opened and closed. In the event of a power supply failure, the system will remain secure and the loading arm can be safely disconnected manually.

Longevity

The use of high quality materials ensures that **the coupler is durable and requires minimal maintenance.** The structure of the coupler is made of stainless steel, making it suitable for transferring cryogenic products. Additionally, the unit comes with a lightweight aluminium cover.



Easily Opened and Closed with Regular Wrench

SPECIFICATIONS

- Manually operated
- Pressure rate: 150 lbs / 300 lbs
- Sizes: 6" to 20"
- Materials: stainless stele (clamps and mechanical parts), aluminium (cover), spring energized lipseals
- Operating temperature: -200°C to +80°C (Other accessories available on request)

LEARN MORE

HYDRAULIC QC/DC COUPLER FOR LNG - FIT FOR EXTREME COLD

This variant of our hydraulic QC/DC coupler is specifically designed for the transfer of LNG. High-strength alloy construction ensures infallible performance in temperatures as low as -200°C. The coupler can facilitate a secure connection between the loading arm and the tanker manifold within seconds. Tough conditions require special equipment. We developed the **Quick Connect/ Disconnect Coupler for LNG** to be the most secure, reliable and efficient solution for transferring liquefied natural gas. Thanks to its proven special design, the QC/DC for LNG offers multiple benefits:

No Product Loss!

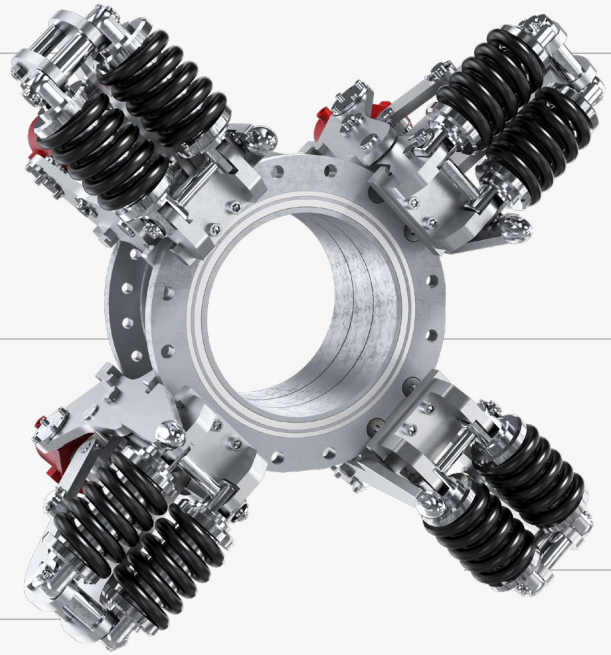
Superior design seals connections regardless of vibration **protecting them from leakage when connected to the ship.**

Safety

Always safe, the coupler maintains secure connection to tanker manifold even in the event of power failure. The QC/DC for LNG doesn't require any manual work from the operator at the manifolds, thus minimizing the risk to on-site safety.

Resilience

The coupler permits some flexibility by compensating for up to 5 mm of unevenness of the nominal mating flange surface, **simplifying operations without compromising security.**



Ensuring compliance

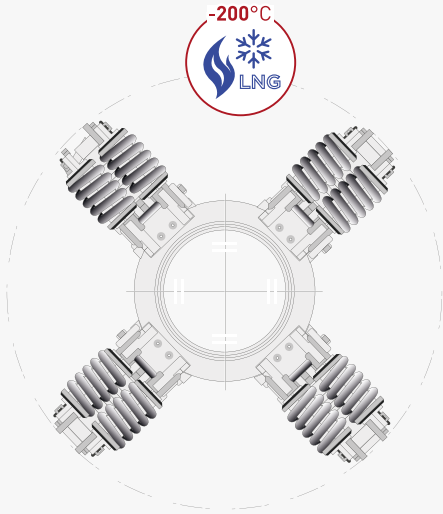
The QC/DC for LNG was designed and tested in accordance with the OCIMF 4th Edition 2019 specification, and adheres to the highest industry standards.

Flexibility

If required, the QC/DC can be opened manually. This way, should the power supply fail, the system will remain secure and the loading arm can be safely disconnected.

Durability

Unlike other products of this kind on the market, in addition to stainless steel, the QC/DC for LNG is made of high-strength material which ensures longevity even in extreme temperatures.



LEARN MORE

EMCO WHEATON®
An Ingersoll Rand Business

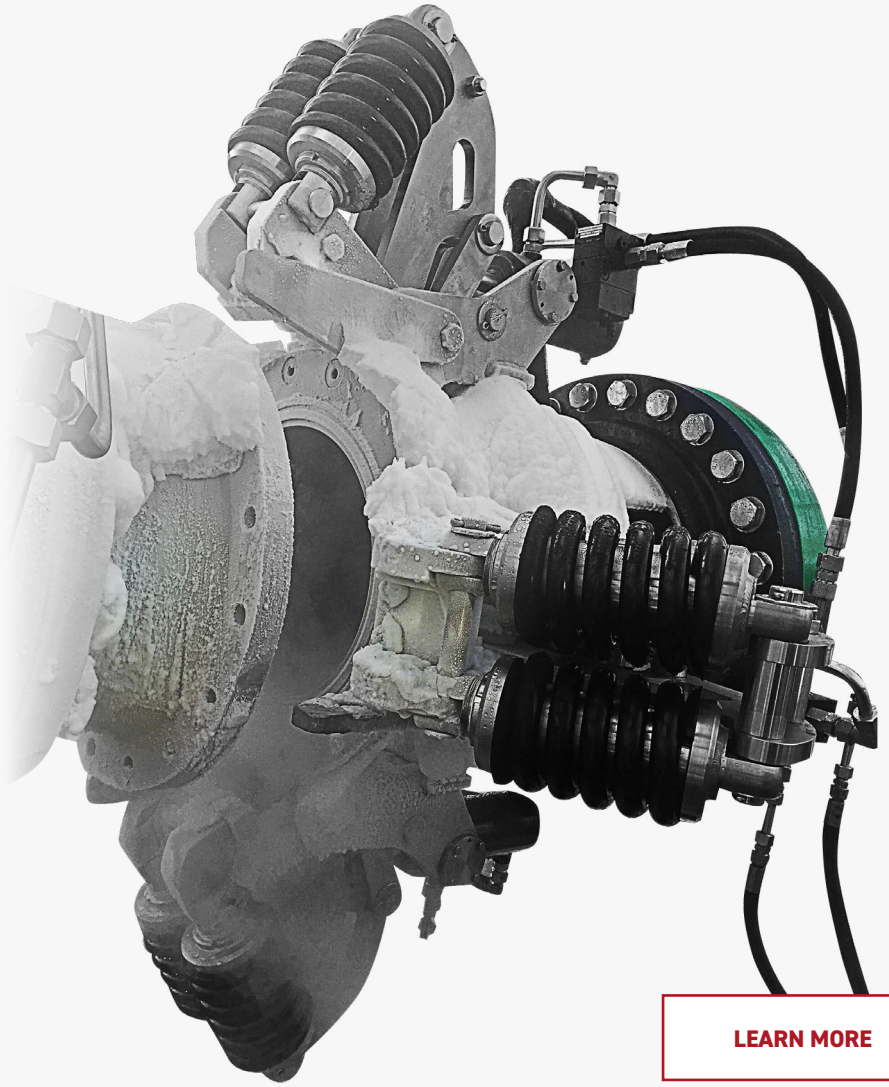
REQUEST A QUOTE

www.emcowheaton.com
Emco Wheaton | www.facebook.com/EmcoWheaton

HYDRAULIC QC/DC COUPLER FOR LNG - FIT FOR EXTREME COLD

FEATURES

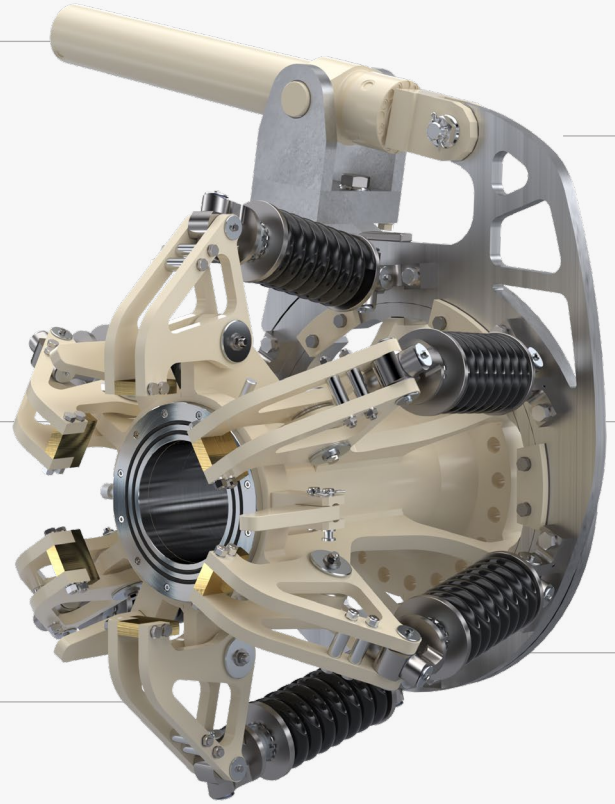
- The clamp assembly design is based on an over-center mechanism that provides a stable connection independent from hydraulic pressure and/or friction.
- The double spring system guarantees a leak-free connection at all temperatures.
- The clamp assemblies are bolted to the main body and can be easily removed for maintenance, if required, without dismantling the entire QCDC from the loading arm.
- The spring system tolerance compensates for up to 5mm of unevenness and thickness of the manifold flange.
- If the power fails, the QCDC can be opened with the hand pump of the HPU.



LEARN MORE

HIGH PRESSURE EMERGENCY DISCONNECTION COUPLER (HP-EDC)

The Emco Wheaton High Pressure Emergency Disconnection Coupler (HP-EDC) is designed as an Emergency Disconnection Coupler for fast and secure coupling procedures for High Pressure Natural Gas Arms. The system consists of two ball valves, one on the loading arm side that acts as a blowdown line and emergency disconnect coupler, and another one on the vessel side with a spool piece. The system's blowdown lines are fully redundant. Design features such a single hydraulic cylinder with a mechanical interlock, a full retraction of brackets behind the flange plane, and hydraulic and signal lines with break-away couplers ensure the highest safety levels.



No Product Loss!

Superior design seals connections regardless of vibration, **protecting them from leakage when connected to the ship.**

Safety

Always safe, the coupler maintains secure connection to tanker manifold even in the event of power failure. The QC/DC doesn't require any manual work from the operator at the manifolds, thus minimizing the risk to on-site safety.

Resilience

The coupler permits some flexibility by compensating for up to 5 mm of unevenness of the nominal mating flange surface, **simplifying operations without compromising security.**

Ensuring compliance

The QC/DC was designed and tested in accordance with the OCIMF 4th Edition 2019 specification and adheres to the highest industry standards.

Flexibility

If required, the QC/DC can be opened manually. This way, should the power supply fail, the system will remain secure and the loading arm can be safely disconnected.

Durability

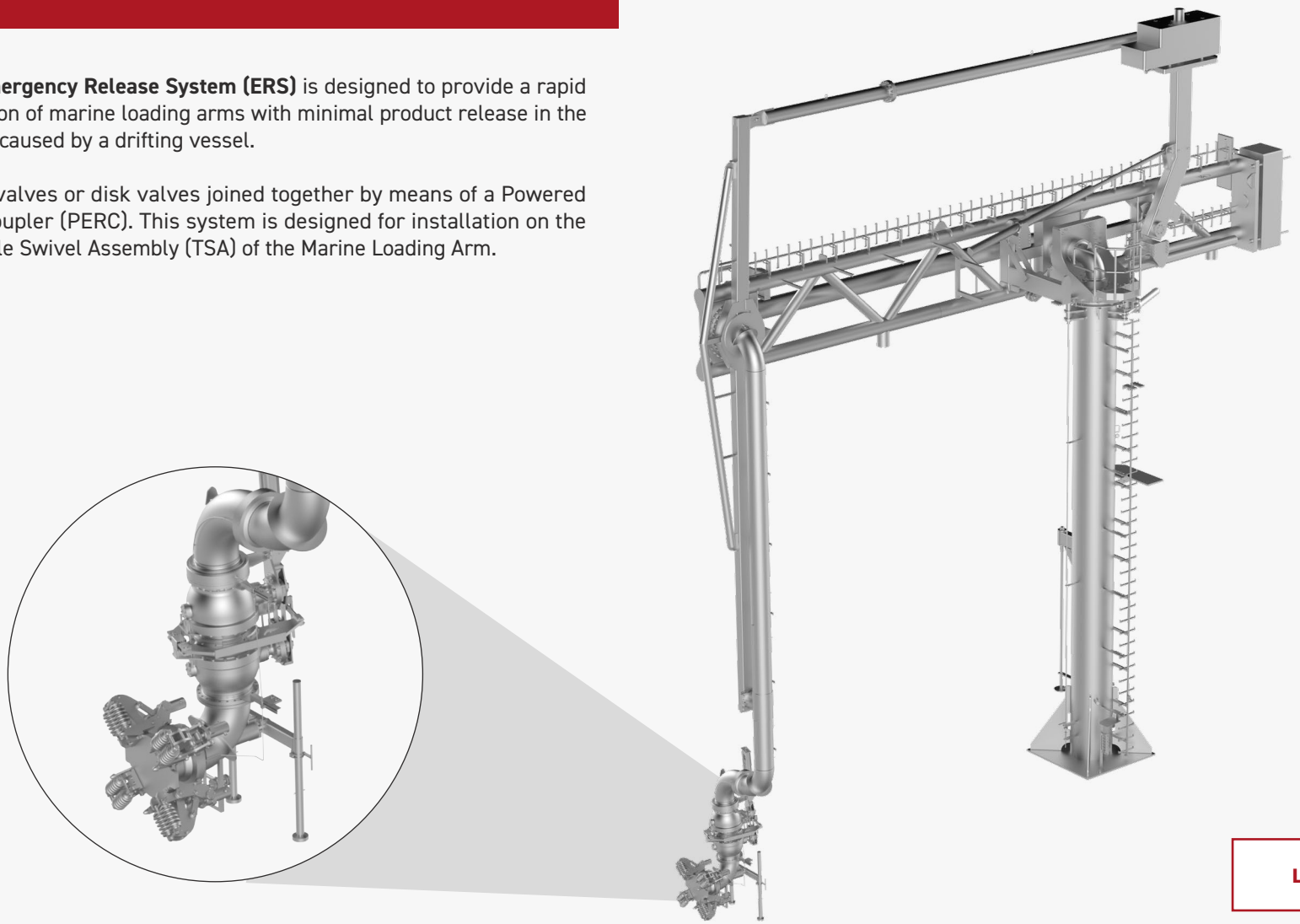
Unlike other products of this kind on the market, in addition to stainless steel, the QC/DC is made of high-strength material, which ensures longevity even in extreme temperatures.

LEARN MORE

ERS (EMERGENCY RELEASE SYSTEM)

The Emco Wheaton Emergency Release System (ERS) is designed to provide a rapid and secure disconnection of marine loading arms with minimal product release in the event of an emergency caused by a drifting vessel.

It consists of two ball valves or disk valves joined together by means of a Powered Emergency Release Coupler (PERC). This system is designed for installation on the vertical part of the Triple Swivel Assembly (TSA) of the Marine Loading Arm.



LEARN MORE

ERS (EMERGENCY RELEASE SYSTEM)

Pre-Alarm Vessel is about to leave Working Area (optional)

ESD 1 Vessel has left working area
Ship and shore side valve close, pumps turns off

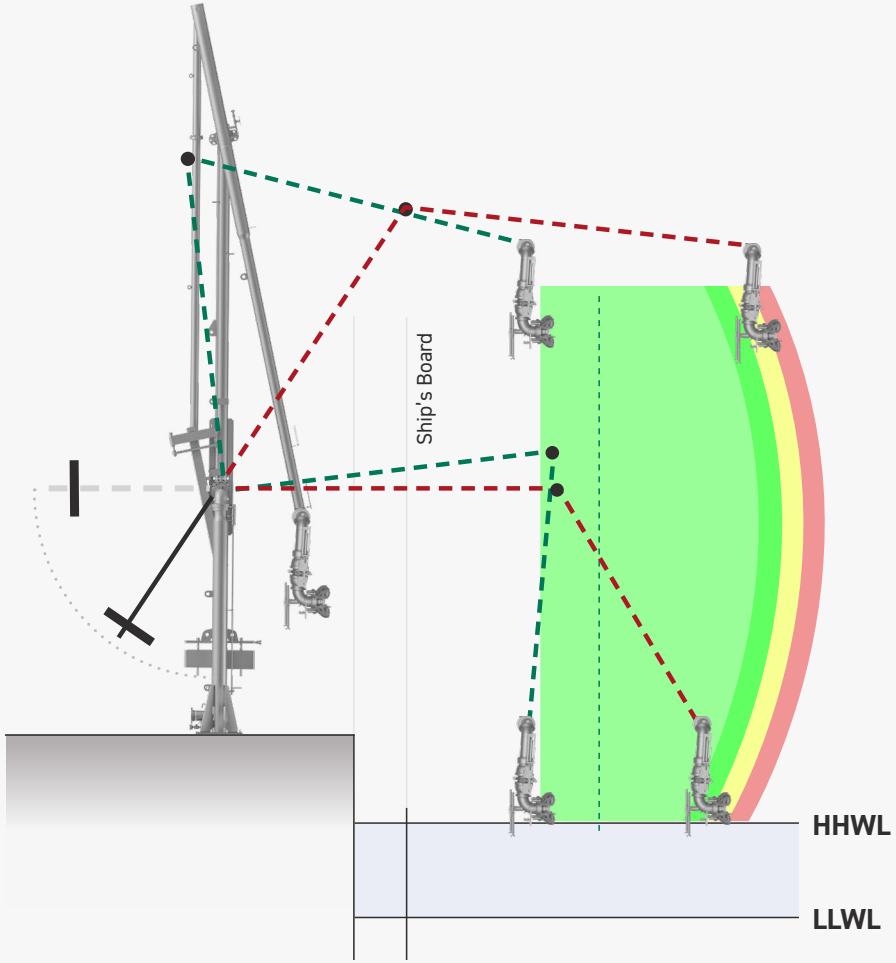
ESD 2 Loading arm approaches maximum mechanical extension.
ERS closes valves and opens clamp

ADVANTAGES

Maximum safety:
- Safe activation of the Powered Emergency Release Coupling (PERC).
- Reliable connection independent of hydraulic pressure and/or friction.
- Possible simulation of an emergency without actually disconnecting, allowing the owner to perform routine tests.

Tested and approved according to OCIMF 4th edition 2019 and ISO 16904.

The Emco Wheaton ERS Dual and not Dual Control is available with:
Dual controls allow for independent operation of the ERS valves without compromising the system's reliability and safety.



LEARN MORE

ERS (EMERGENCY RELEASE SYSTEM) FOR LNG

At Emco Wheaton, we have developed our own **ERS** for LNG applications*. The ERS is designed for fast and safe disconnection of the LNG Marine Loading Arm before the ship gets out of reach.

It consists of two ball valves, joined together by means of an Powered Emergency Release Coupling (PERC). This system is designed for installation in the vertical upstand of the Triple Swivel Assembly (TSA) of the Marine Loading Arm. **Thanks to its proven, special design, the ERS for LNG offers multiple benefits:**

Pressure relief

With the valves in closed position, the special design of the sealing seat arrangement ensures **safe relief of pressure** coming from trapped product (i.e. LNG).

Stable connection

The design of the PERC is based on an overcenter mechanism that grants a **stable connection** independently from hydraulic pressure and/or friction.

Designed for safely

Thanks to the unique design of the drive mechanism, the valves are simultaneously operated and mechanically interlocked with the Powered Emergency Release Coupling (PERC). Therefore, **it is possible to operate the valves independently** from the Powered Emergency Release Coupling (PERC) and without the activation of the emergency release. Furthermore, the activation of the ERS is only allowed after a complete closure of the valves. **With the Emco Wheaton's ERS it is possible to simulate an emergency without real disconnection**. This feature allows the Owner to perform routine tests during the all life of the equipment, and, if required, before each loading.

Ensuring Compliance

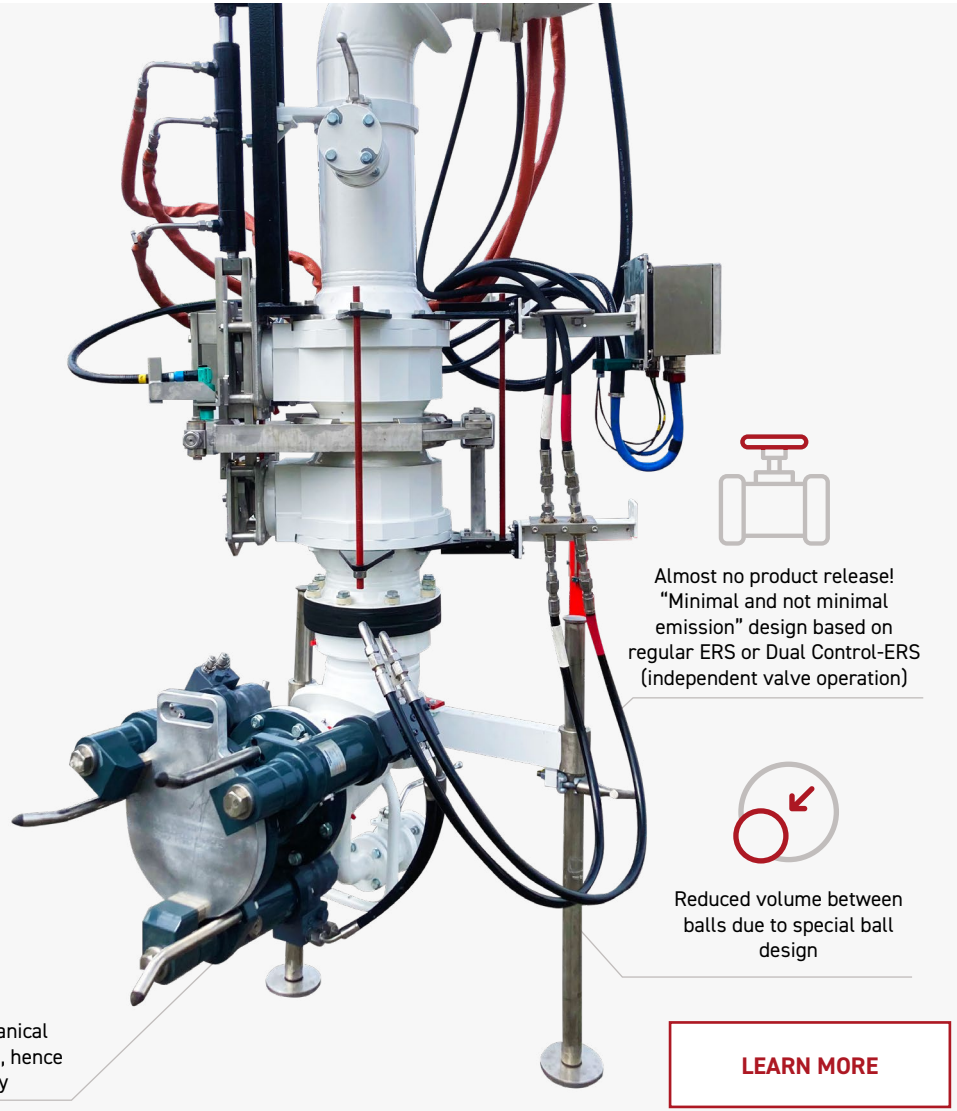
The Emco Wheaton emergency release system is designed and tested according to **OCIMF 4th edition 2019 and ISO 16904**.

LEARN MORE

ERS (EMERGENCY RELEASE SYSTEM) FOR AMMONIA

Emco Wheaton has developed an **Emergency Release System (ERS) for ammonia applications** that can release the marine loading arm in case of emergency. Its reliable design meets the highest safety standards.

The design has a minimal-emission feature, enabled by a special arrangement of both valves. Normally, in the event of an emergency release of the ERS the volume between both closed ball valves is released into the atmosphere. As ammonia is toxic, the Emco Wheaton Ammonia ERS features a significantly lower ammonia release to protect operators and the environment. With additional features, the ammonia release can be reduced to almost zero.



LEARN MORE

RIGID LINK PANTOGRAPHIC BALANCING SYSTEM

The rigid link between the outboard section and the secondary counterweight is a significant advantage compared to wheel and rope systems, as the rigid link reduces maintenance costs. It is set once in the factory and does not need to re-tightened throughout its entire lifespan.

BENEFITS:

Maintenance-free design.
No regular rope re-tightening.

Optimized position of secondary counterweight contributes to overall-balancing.

Smooth movements.

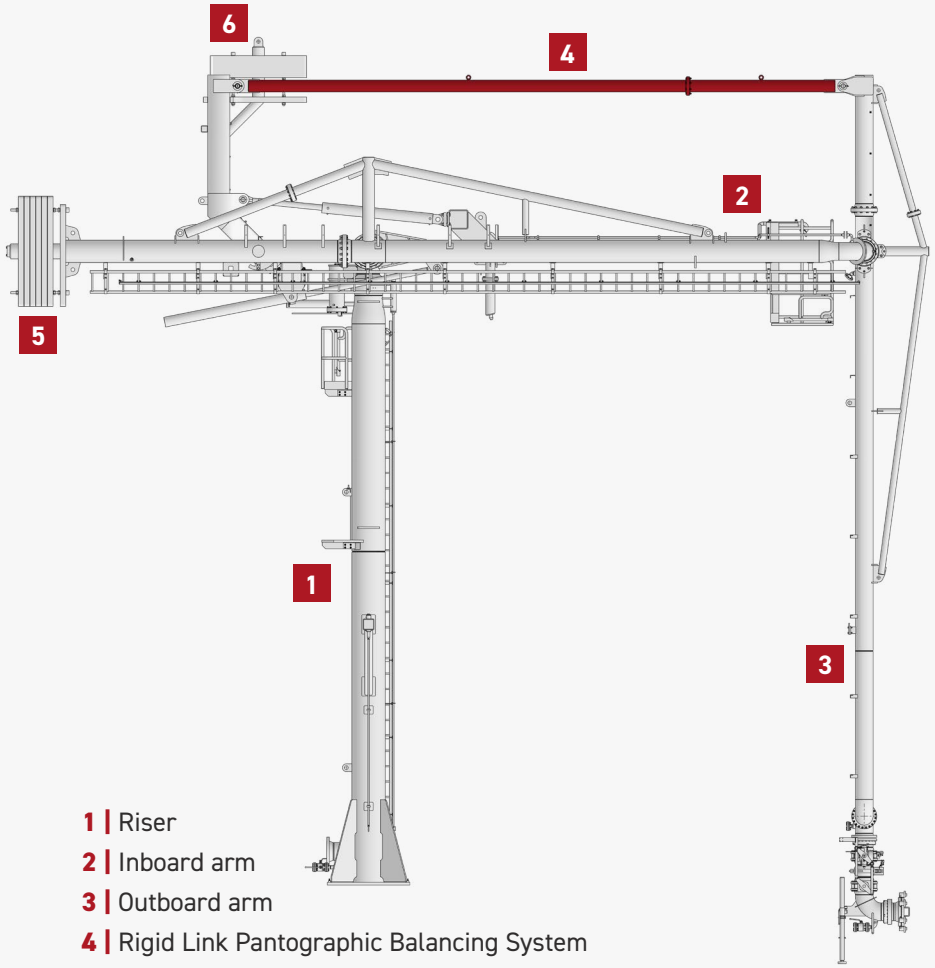
Optimized space. Minimal space required behind the loading arm. Extremely narrow design.

Designed to Maximum Safety. Reduced risk of counterweight clashing.

Low foundation forces. Low dead weight, small windage areas and center of gravity within baseplate.

OTHER FEATURES:

- No cable sheaves acting as wind catchers, highest wind speed at apex.
- Secondary counterweight support mounted not at back arm's end .
- Secondary counterweight and riser almost in same plane.



1 | Riser
2 | Inboard arm
3 | Outboard arm
4 | Rigid Link Pantographic Balancing System
5 | Primary Counterweight
6 | Secondary Counterweight

LEARN MORE

07 | CONTROL SYSTEMS

EMCO WHEATON supplies individual control systems for comfortable and safe operation of marine loading arms.

Control Systems are used to power up and control the Marine Loading Arms on the jetty.

Emco Wheaton has wide experience in designing Control Units for Marine Loading Arms. There are two types of Emco Wheaton control units:

FEATURES:

- Manoeuvring the movement of the loading arm.
- Operating the hydraulic QCDC (if applicable).
- Operating ERS valves (if feasible).
- Monitoring the loading arm.
- Identifying hazardous conditions.
- Initiating emergency release procedures.
- Providing signals and data to customer interfaces.
- Receiving signals from customer systems.

LEARN MORE

BENEFITS:

Flexibility. Flexible for the operator and the variance of control panels. This system can be operated locally or via remote control.

Easy to integrate. This system can be easily integrated into the customer's facility control and information system.

Maximum safety. The System 2 control system can be upgraded with an automatic Emergency Disconnection System, called EDS4. This EDS4 Upgrade provides safety features for the Marine Loading Arm. In case of emergency the MLA can be disconnected safely and automatically in a short time. Several types of information and alarms can be supplied and integrated into the customer's information and safety system.

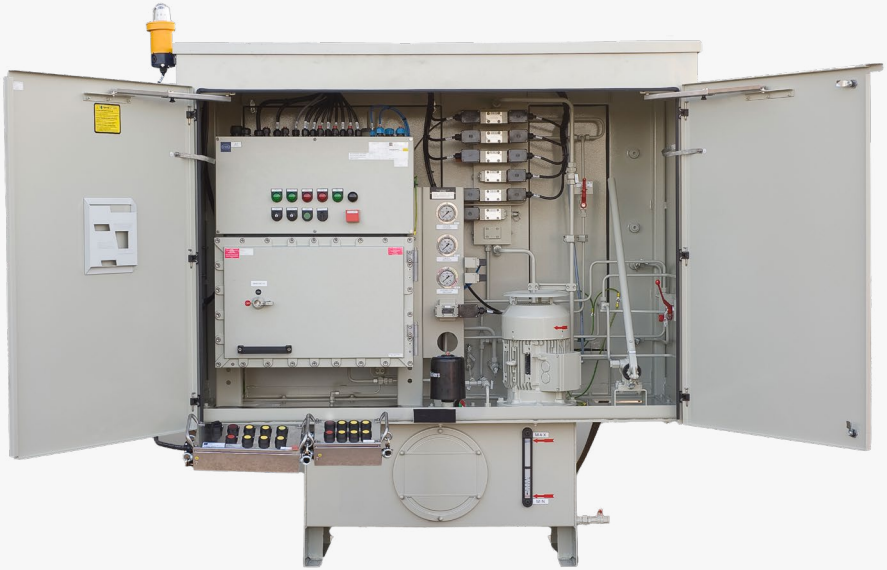
07 | CONTROL SYSTEMS

FEATURES:

- Tank equipped with hydraulic pump.
- Solenoids centralized or dedicated in the Hydraulic Control Unit (HCU).
- Hydraulic accumulators for ERS (Emergency Release Systems).
- Electrical Control Cabinet (ECC) with PLC and I/O cards located in either an ex-zone or non-ex area. Local Control Panel (LCP) for operating from the jetty. Radio Remote control (RRC) for operating from the vessel (optional).
- Pendant (optional).
- Redundancy of power supply, CPU, I/O cards and/or hydraulic pumps it is a feature.
- Uninterrupted power supply (UPS)
- Fiber Optic Connections and remote-I/O.
- Hydraulic accumulators for possible retraction.
- SIL calculation and rating. HAZOP, FMEA.

REGULATIONS

Fully compliant with IEC, ATEX, NEC 500/NEX 505 or other standards possible.

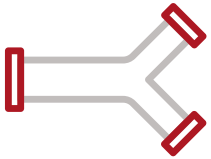


LEARN MORE

08 | ADDITIONAL EQUIPMENT

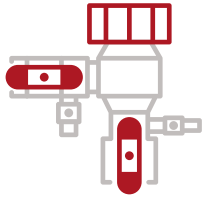
Emco Wheaton marine loading arms can be furnished with the following equipment upon customer's request:

DRAIN CONNECTIONS



Drain connections are an essential component of marine loading arms as they allow for the drainage of residual products that remain in the loading arm after the transfer process is completed. Prevent spills and protects the environment and ensures a safe and efficient operation of Marine Loading Arms.

VACUUM BREAKER



The vacuum breaker is to make air enter into a product line to allow the draining of the arm after cargo transfer. Product flows by gravity to the shore side and ship side, either through drain connections or shore or ship piping. The vacuum breaker is normally operated from the TSA.

LEARN MORE

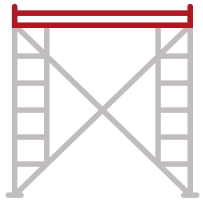
NITROGEN PURGE LINE

Nitrogen purge lines are used to pressurize the loading arm to make the product flow not by gravity but by pressure if the viscosity is too high for gravity flow or if the product pipe must not become open to the atmosphere (vacuum breaker not allowed for certain products). Nitrogen purge lines are also used to purge the loading arm prior to disconnection to have no vapour anymore in the arm when the flange or QCDC is opened (mainly for vaporizing flammable hydrocarbons).

08 | ADDITIONAL EQUIPMENT

VAPOUR RETURN LINE

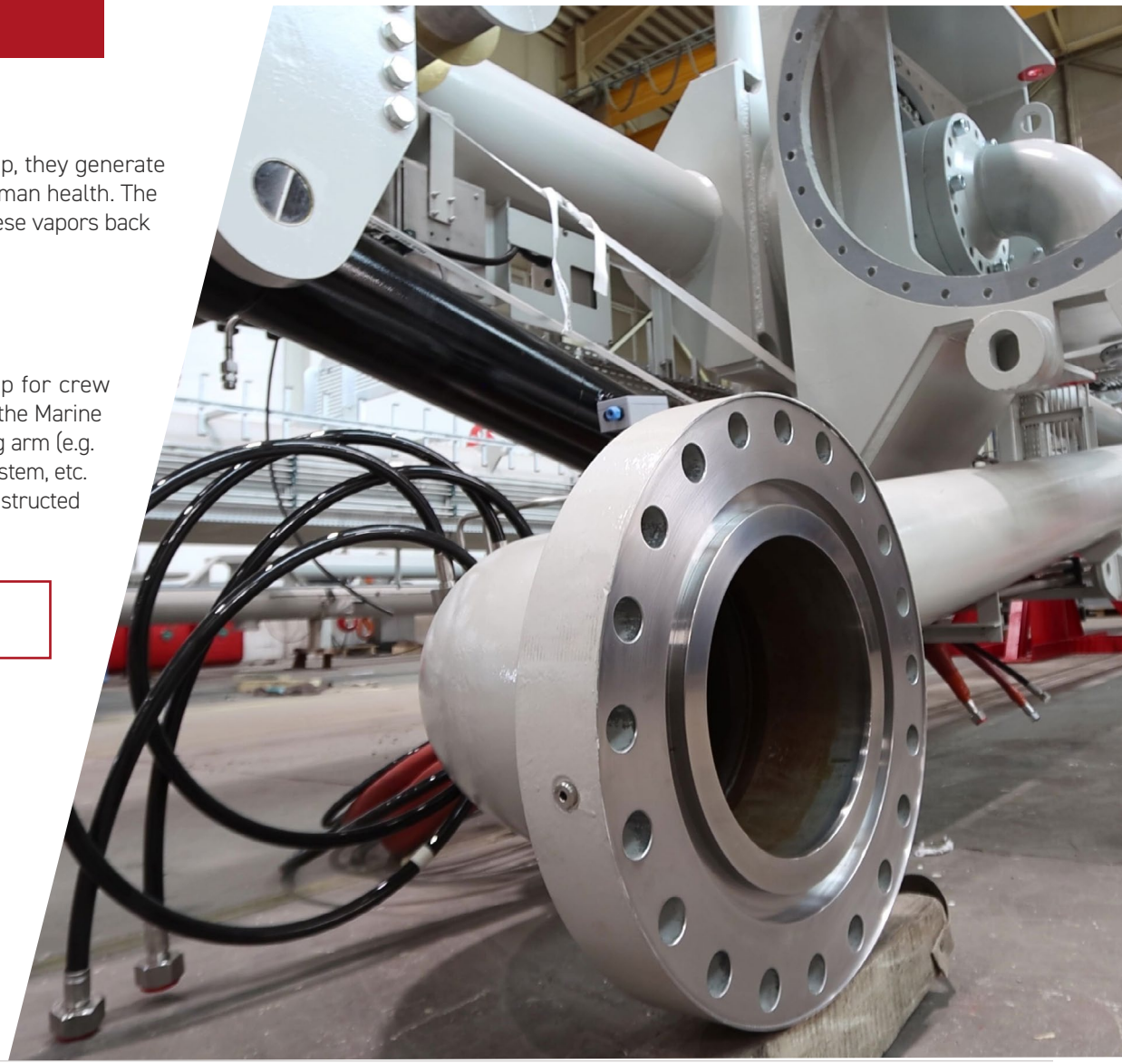
When volatile liquids are loaded or unloaded from a ship, they generate vapors that can be hazardous to the environment and human health. The vapor return line is used to safely collect and transport these vapors back to the storage tank on the ship or the terminal.



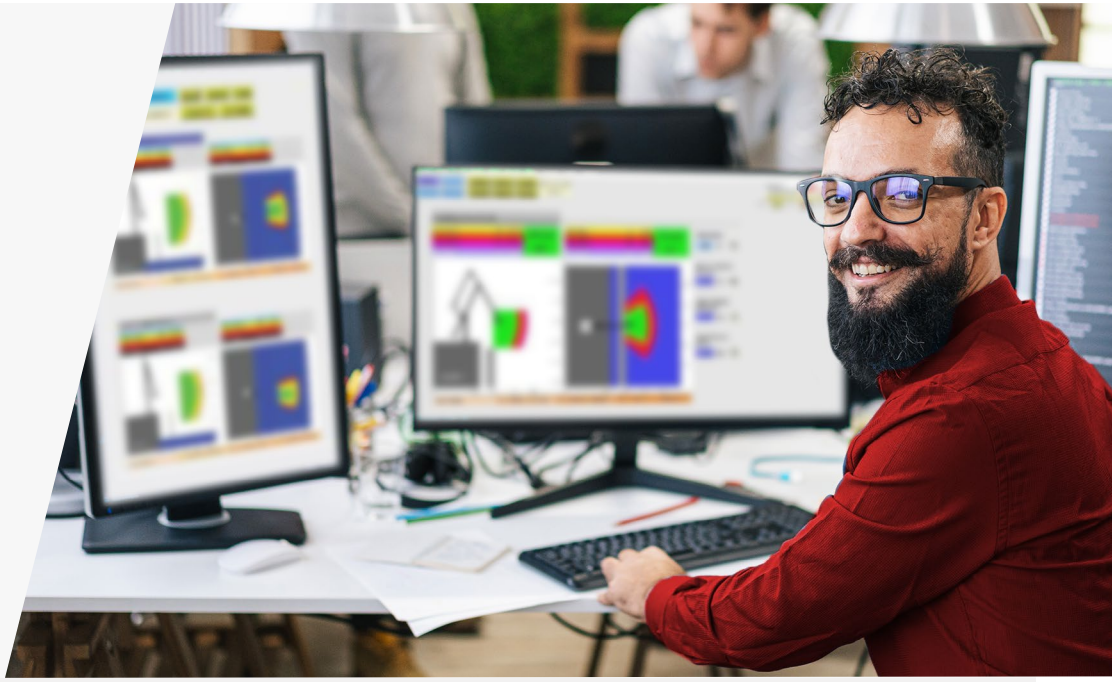
LADDERS AND PLATFORMS

Ladders and platforms provide safe access to the ship for crew members and workers who are responsible for operating the Marine Loading Arms. They allow regular inspections of the loading arm (e.g. swivel joints or structural bearings), to vent the hydraulic system, etc. Emco Wheaton ladders and platforms are designed and constructed to meet the strictest safety and efficiency standards.

LEARN MORE



09 | CPMS / CONTINUOUS POSITION MONITORING SYSTEM



Emco Wheaton offers a Continuous Position Monitoring System (CPMS) to provide detailed information about the position of the Marine Loading Arms and to visualize their current status.

Continuous Position Monitoring System (CPMS) is a stand-alone unit and features sensors at riser standpost, inboard arm and outboard arm to collect information relayed through a computer that is connected to the Programmable Logic Controller (PLC).

BENEFITS:

- Continuous displaying and recording of loading arm positions
- Easy berth visualization for distant control rooms
- Various views of one loading arm or of all loading arms
- Easy to use

LEARN MORE

10 HIGHEST QUALITY STANDARDS

At Emco Wheaton, we meet the standards of multiple **quality certificates, issued by various institutions worldwide.**

We continually optimize our equipment and internal processes to ensure the safety and integrity of our customers' operations. Our portfolio of Marine Loading Arms and accessories is designed to comply with a range of international standards, including:

Codes:

- OCIMF
- ISO 16904
- SIGTTO
- ASME
- ATEX
- IEC
- AISC Structural Components
- European Machinery Directive
- VDI/VDE
- TRAS
- OTHERS
- Pressure Equipment Directive (PED)

LEARN MORE

11 TRANSPORTATION

Emco Wheaton **offers transportation and erection services to meet the specific project needs of our customers.** We ensure our marine loading arms are transported safely and installed directly onto the jetty at the customer's site.

Transportation Services Scope

At Emco Wheaton, we plan carefully the marine loading arms transportation process to ensure that the marine loading arms components are transported safely and securely. Our transportation services include:

- Transport in fully assembled condition
- Loading Arm
  - Riser standpost
  - Inboard arm incl. counterweight
  - Outbound arm incl. counterweight
  - Hydraulically and electrically installed
- Triple swivel assembly
- Control system / hydraulic power unit
- Packages on stable steel supports
- Optional container transport

12 ASSEMBLY

Assembly Services Scope

The marine loading arms components are assembled on-site using mobile or floating cranes. After erection and commissioning, the marine loading arms are then tested to ensure that they are functioning properly. Our erection and commissioning services include:

- Supervision of erection and commissioning
- Typical erection time 1 day on job site
- Commissioning after interconnecting tubing and cabling
- Site Acceptance Test (SAT) TUBING
- Optional full services

13 | SERVICE & SUPPORT

Register Your Arm
Keeping your loading arms in good shape is paramount to reducing the total cost of ownership. To achieve that you need to make sure that all the needed maintenance works are conducted on time. Help us to keep track of the condition of your loading arm so that you can keep making the most of your equipment for longer. We invite you to register your loading arm via our form. Click the button and fill out the information to register your loading arm!

REGISTER NOW

Emco Wheaton **offers tailored service agreements to meet your specific needs.** Our aftermarket experts provide a range of services to ensure your project runs as **safely, efficiently and successfully** as possible for **your peace of mind.**

Maintenance Service Solutions Scope:

- Transportation
- Supervision of Commissionin
- Operational & Maintenance Training
- Preventive Maintenance Inspection (PMI)
- Genuine Spare Parts
- On-site Testing
- Inventory Assessment for Gaps and Upgrades
- Refurbishment
- Total Overhaul

LEARN MORE

14 | INGERSOLL RAND ENGINEERED SOLUTIONS

Emco Wheaton forms part of Ingersoll Rand Engineered Solutions, **a business line of Ingersoll Rand focused on delivering the most reliable engineered to order solutions in the market.**

Ingersoll Rand Engineered Solutions mission is to design, develop, deliver and help to manage complex projects with the most trustworthy engineering solutions allowing our customers to succeed.

At Ingersoll Rand Engineered Solutions, our products include **compressors and vacuum pumps** for both air and gas with different technologies and **loading arms**. They enable mission critical processes in **oil & gas, power generation, environmental, chemical & petrochemical, mining, pulp & paper, general industry** and many other key sectors.

STRATEGIC BRANDS

Ingersoll Rand Engineered Solutions has been created by four prestigious leading brands with great reputations - **Emco Wheaton, Nash, Garo, Robuschi, Elmo Rietschle, Hibon and Wittig** - which together boast of more than 300 years of experience.

Ingersoll Rand

LEARN MORE

EMCO WHEATON

Emco Wheaton combines expertise and knowledge, with an innovative attitude and unmatched skills to produce world leading fluid transfer equipment.

Garo

Garo has been a manufacturer of liquid ring compressors since 1947. They are the heart of our custom-designed gas compression systems for the oil & gas, petrochemical and chemical industries.

ROBUSCHI

Robuschi is a leading company specializing in industrial equipment, particularly vacuum and blower solutions. Established in 1941 in Italy, Robuschi is known globally for its high-quality rotary lobe blowers, screw compressors. With a focus on innovation and customer satisfaction, Robuschi serves diverse industries worldwide, delivering customized solutions to meet evolving industrial needs. The company also offers specified product customization and application engineering services to tailor solutions to each client's unique requirements.

NASH

Nash is the inventor and market-leading manufacturer of highly engineered liquid ring vacuum and compressors systems as well as dry vacuum systems that stand out through their high reliability and low total cost of ownership.

WITTIG

The Wittig Industrial Systems provide engineered solutions for vacuum and pressure. Wittig rotary vane compressors and vacuum pumps are outstanding performers in terms of reliability and economy of operation for any applicationand in any industry.

hibon

Hibon has a long-standing history of over a hundred years, during which it has provided a wide range of solutions. These solutions encompass process positive displacement blowers and vacuum packages, ensuring the safe and efficient transfer of gases, including hazardous or harmful mixtures, as well as steam recovery, to meet the specific needs of various industries.

Elmo Rietschle

We offer cutting-edge, custom-made solutions for vacuum applications that fit with customers needs across a wide range of industries. We are committed to delivering complete systems and turnkey solutions based on each customer's choice of technologies. For every customer, we deliver a powerful combination of high-efficiency pumps, specially selected peripheral equipment, and skilled support from an experienced team.

15 | CONTACT

Sales offices

Emco Wheaton GmbH
Emcostraße 2,
35274 Kirchhain,
Germany
Phone +49 6422 84-0
Fax +49 6422 5100

Emco Wheaton USA, Inc.
8825 North Sam Houston Pkwy West
Houston, TX 77064
Phone +1 281 856-1300
Fax +1 281 856-1325

Emco Wheaton Asia Pacific
Ingersoll Rand Malaysia Co. Sdn Bhd
No. 7 Jalan Geremit 15/22,
Taman Perindustrian Tiong Nam, Seksyen 15,
40200 Shah Alam, Selangor D.E,
Malaysia.
Phone: +(00) 6012 291 5673

Gardner Denver International Ltd
PO Box 30804
Diraz, Manama
Bahrain
Phone +973 17813187
Fax +973 17813186

Gardner Denver International Ltd
8825 N Sam Houston Pkwy W
Houston, TX 77063
Phone 281-856-1300

Gardner Denver France Emco Wheaton
ZA du Château d'eau,
70 avenue Albert Einstein
77551 Moissy-Cramayel Cedex
Phone +33 (0)6 72 93 40 98

Gardner Denver Austria GmbH
Emco Wheaton
Hofherr-Schrantz-Gasse 4
1210 Wien,
Austria
Phone +43 (1) 2701199-35
Fax +43 (1) 2701199-11

Ingersoll Rand/Emco Wheaton
10F, Tower B,
City Center of Shanghai,
No. 100 Zunyi Road,
Shanghai 200051, China
Phone: +86 18653323938
+86 18521382161