CryoTec Series

JLA
LOADING TECHNOLOGY

All JLA Products are designed, engineered and assembled in the Port of Rotterdam, Europe's largest Port.


nd

Loading Technologies
for Cryogenic products

Cryogenic products are liquids with extreme low temperatures. JLA define liquids as Cryogenic liquids when they have boiling points below – 50 °C.

These low temperatures call for different measures. Cryogenic products require robust materials and designs that can handle the wide temperature ranges. Moreover the Cryogenic applications require different safety measures. JLA have therefore developed a product line dedicated for Cryogenic applications.

This dedicated product line is suitable for Cryogenic products such as:

- LNG
- Ethylene
- Nitrogen
- And more.

LNG

JLA see a growing market for LNG loading facilities and identify a growing need for state-of-the-art LNG loading facilities for storage and processing of LNG. Also the market for bunkering of LNG as a fuel is asking for new state-of-the-art Cryogenic Loading Facilities.
It is therefore, that JLA have developed a product line to meet this demand for state-of-the-art loading facilities. JLA combined it's expertise, gained in more than 30 years of experience, into this design.

The JLA Cryogenic Products are characterized by

- A Supported structure
- A Cable-free design
- Minimum swivel joints in the product line
- Minimum downtime
- Easy maintenance
- A Minimum pressure drop

LNG

Ethylene

Nitrogen


LNG PIONEER

Safety and Reliability

Extreme low temperatures

The extreme low temperatures and the huge difference between the ambient temperature and the temperature of the cryogenic liquids brings along a unique set of safety challenges. JLA has made it theirduty to safeguard the operators from harm while operating cryogenic loading facilities. , Measures to ensure personal and environmental safety form a key ingredient in every JLA design.

Beside the extreme temperatures, cryogenic liquids can create dangerous situations when getting in direct contact with ambient temperatures. In order to protect the operators and the environment, JLA incorporated safety measures in their designs to limit the risk of rapid expansion of cryogenic liquids to a minimum.

Reliability

Loading facilities provided by JLA form a critical part in the value chain of their customers. It is of JLA's utmost interest to assure reliability and be a certainty in the business processes of their customers. Reliability and safety are fundamental to all JLA's cryogenic technologies and equipment.

Mimimum down-time, easy maintenance and a robust design are key features of the JLA designs.

Quality standards

In order to meet the industry's high standards on safety and reliability, JLA test their equipment against norms and levels even higher than the levels required in the petro-chemical market.

Flow Academy

In our Flow Academy we train our engineers and customers the ins-and-outs of the loading technology, the science behind designing an innovative product and the reasons we hold such high standards.


Testi cility
JLA
ADING TECHNOLOGY

Product overview

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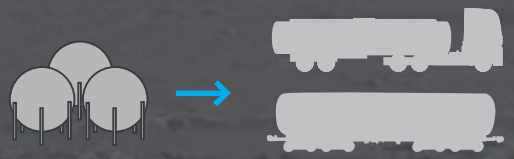

Ship-to-Ship Bunkering

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CryoTec Marine Loading Arm

In order to meet the global demand for cryogenic liquids, a vast amount of storage terminals and plants require state-of-the-art loading facilities to load and unload cryogenic liquids from ships ranging from all sizes.

JLA developed the CryoTec Marine Loading Arm, to provide a safe and reliable solution for ship loading- and unloading facilities worldwide.

The CryoTec is ideal for loading or unloading LNG, Ethylene Nitrogen or any other cryogenic product.

As a result of the high quality standards of JLA on safety and reliability, the JLA CryoTec Marine Loading Solutions have a Cable Free design with a minimum amount of swivel joints. The design of CryoTec Marine Loading Solutions are characterized by:

- A Supported structure
- A cable-free design
- Single counterweight balancing
- Minimum pressure drop
- JLA Ice fall of protection
- Easy maintenance
- Cartrige type CryoTec swivel joints

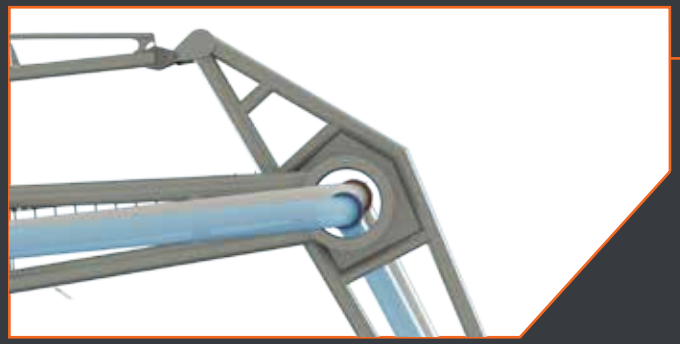
Designed for safety and convenience

Graphical representation that shows how the loading arms are connected to the ship. Our Positioning Monitering System also shows the status of the hydraulic and electric systems.

With our Position Monitering System the operator can ensure a safe and reliable operation.


JLA

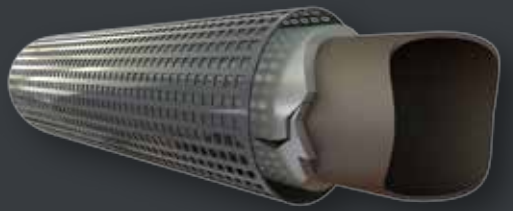
Design CryoTec

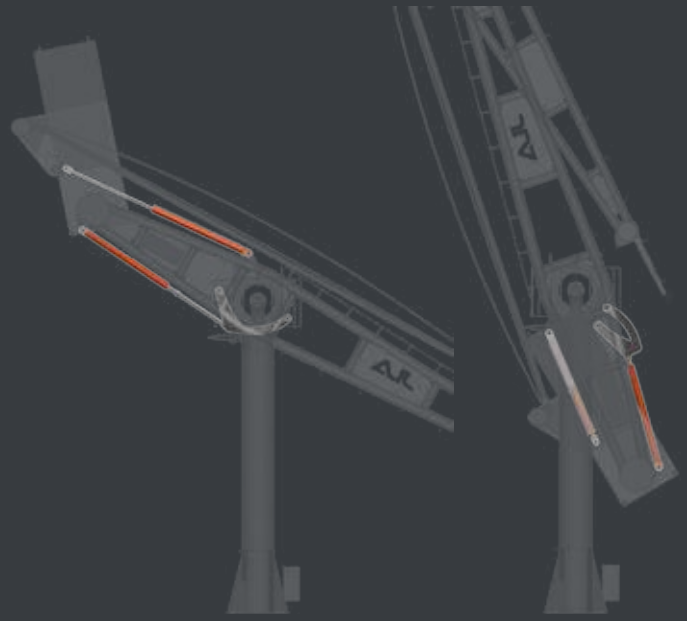


Supported arms

Extreme temperature differences cause expansion and shrinkage of the arms. The CryoTec loading arms are completely supported to ensure safety and durability.

- extreme cold temperatures (cryogenic)
- ambient temperatures





Smart Hydraulic Mechanism

The CryoTec Smart Hydraulic Mechanism results in smoother operation and lower pivot loads.

Ice fall off prevention

Working with extreme low temperature can cause the piping of the loading arm to be covered with a thick layer of ice. The operator often works and walks under these dynamic moving pipes. This can be very dangerous when the ice slowly starts to fall off.

Our ice fall off protection makes sure all parts of the ice are caught in a special net that surrounds the piping, ensuring the safety of the operator.

Safe working platforms

A safe working area with sufficient space for inspection and maintenance for the swivel joint seals.

Safety Integrity Level

SIL is defined as a relative level of risk-reduction providedby the safety components.
JLA can deliver the critical components of the CryoTec series as SIL1, SIL2 or SIL3.

Cable free design

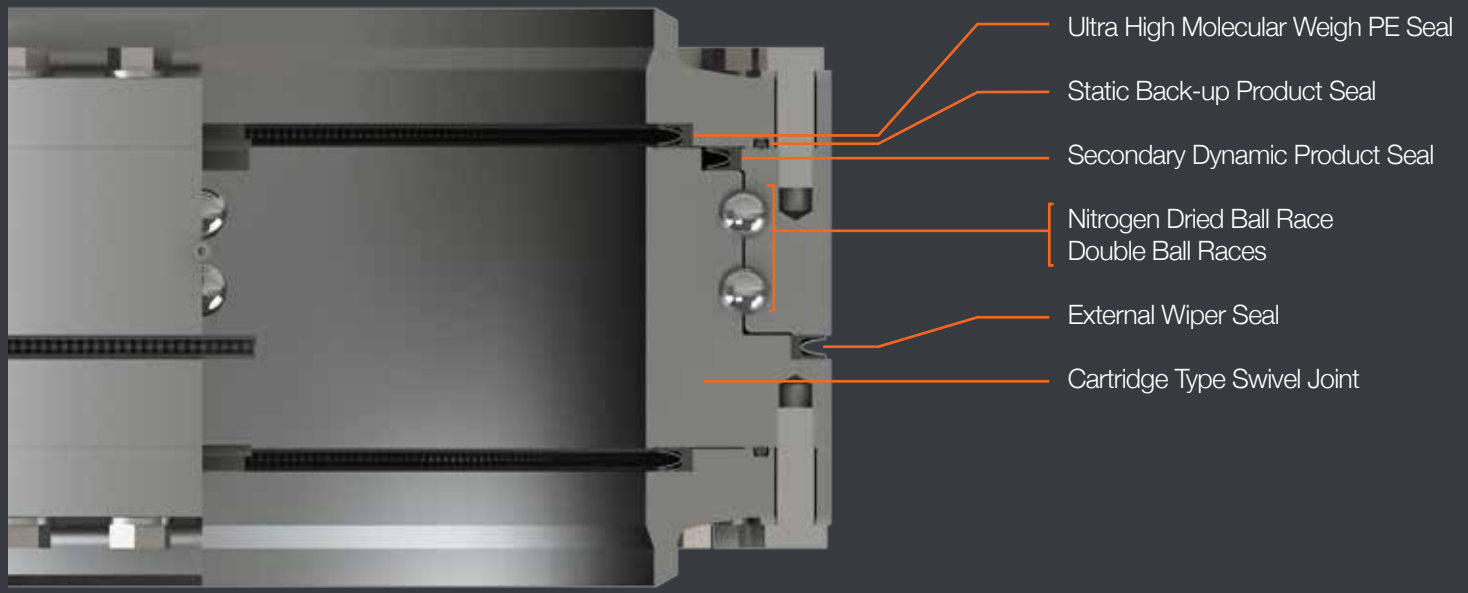
Our marine loading arms use absolutely no cables and are therefore more practical, safe and durable.

Swivel Joint

The swivel joints form the heart of our CryoTec Marine Loading Series, and allow them to freely follow the ship movements.

JLA has developed a unique swivel joint with cartridge type ball races, which can be easily replaced as a whole. In order to avoid the ball races to be frozen the ball races will be nitrogen dried.

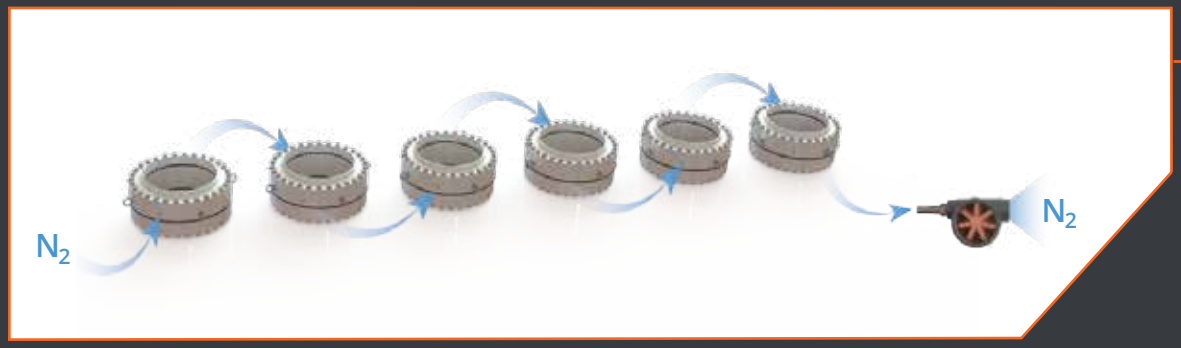
The swivel joint is designed and tested according to EN1474, ISO16904:2013 and OCIMF'99



Safe and reliable

Robust stainless steel swivel joints with double ball race, double seal design, nitrogen dried ball races.
Extra large bearing balls results in a low peak stress in the ball races and a longer lifetime.

UHMW-PE with Stainless Steel Spring Energized Seals.



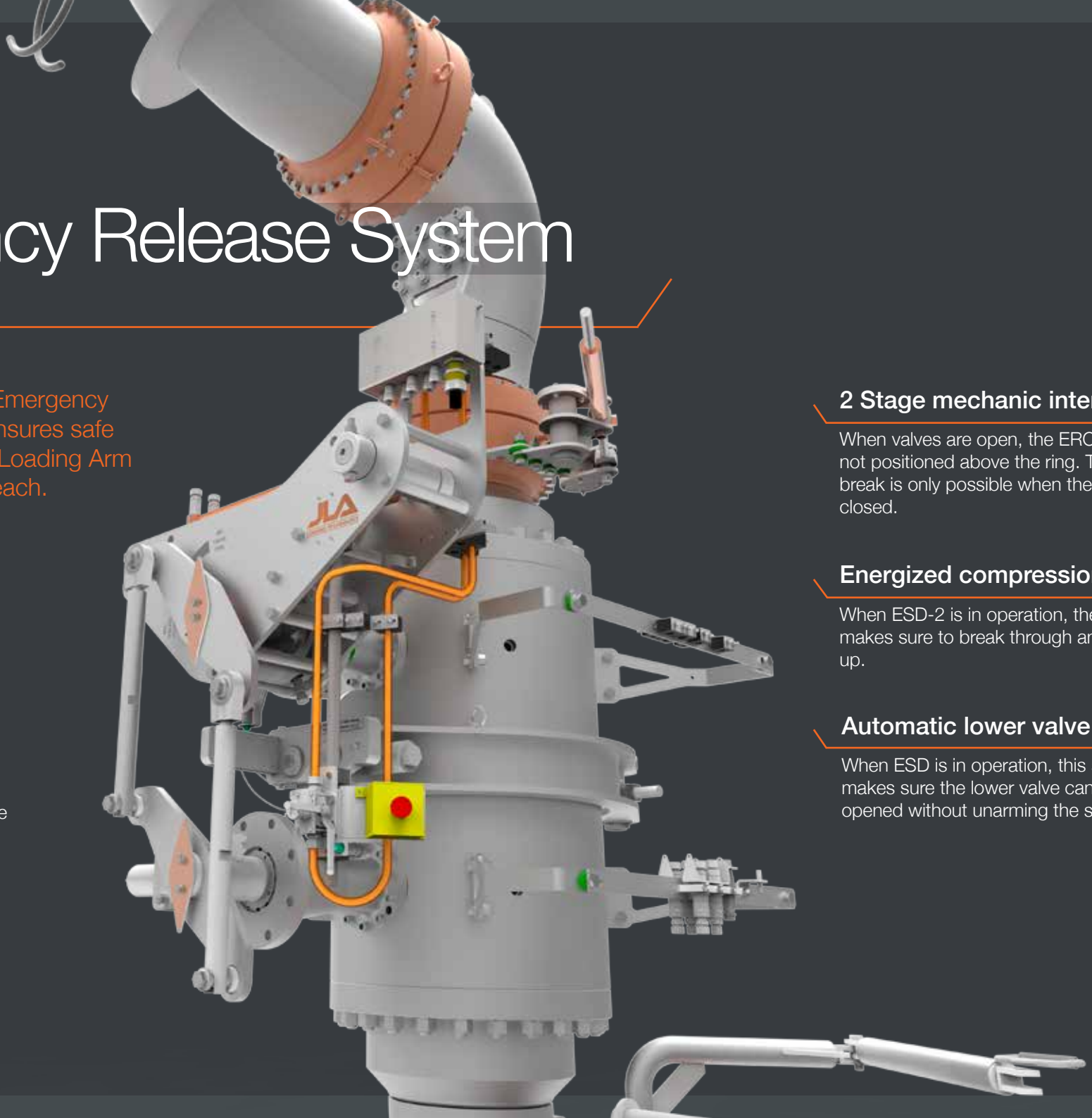
Nitrogen dried ball races

Nitrogen is purged through all 6 swivel joints throughout the loading arm and monitored via an visual flow indicator.

The swivel joints are **protected from moisture**.
Working with extreme cold temperatures, any moisture can become a blockade in the movement of the loading arm.

ERS
Emergency Release System

JLA has developed its own Emergency Release System. The ERS ensures safe disconnection of the Marine Loading Arm before the ship gets out of reach.



Removable ERC lever

For having an ESD simulation without really breaking the ERC.

Break pin

To avoid unintentional activation of the ERC ring.

2 Stage mechanic interlock

When valves are open, the ERC cylinder is not positioned above the ring. Therefore a break is only possible when the valves are closed.

Energized compression spring

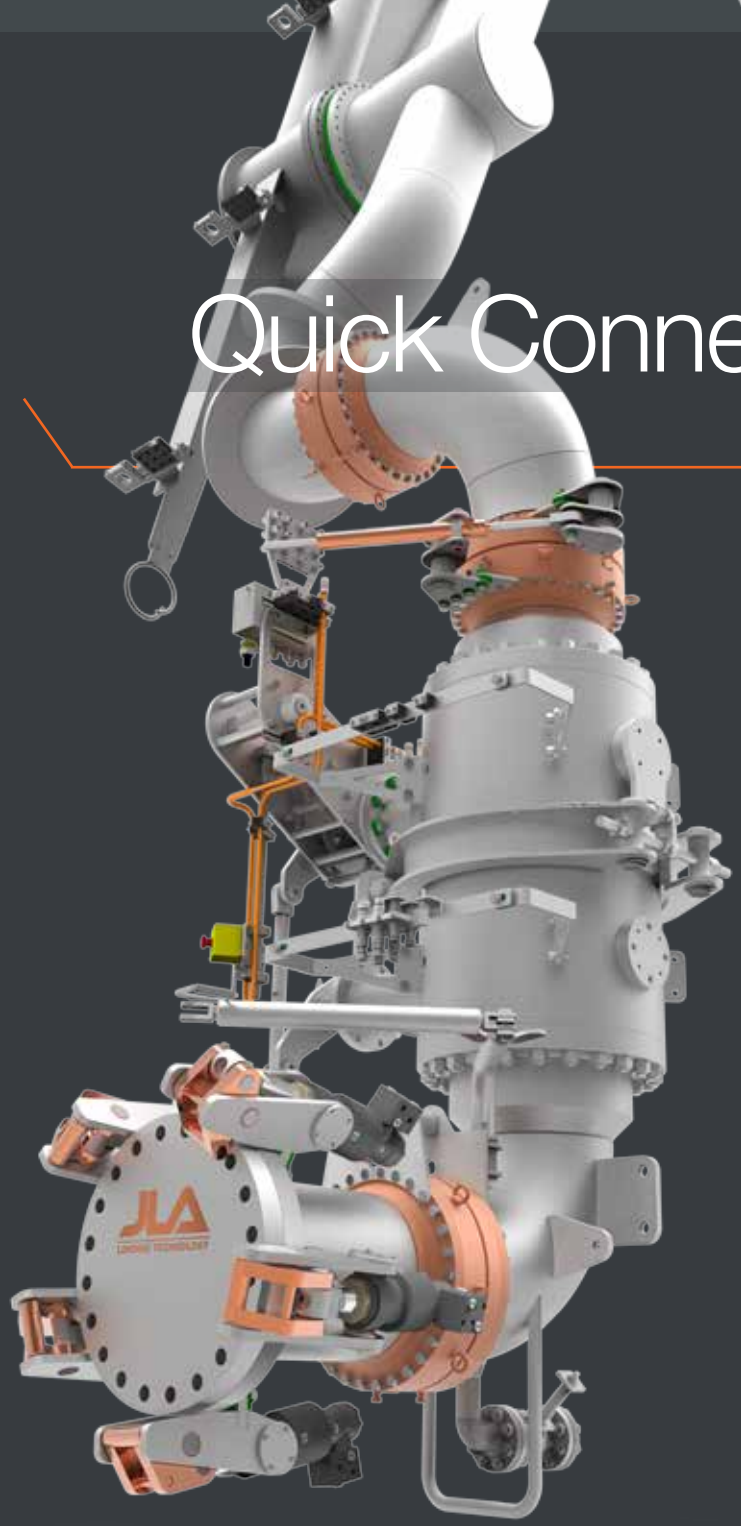
When ESD-2 is in operation, the spring makes sure to break through any ice built up.

Automatic lower valve locking

When ESD is in operation, this system makes sure the lower valve can't be opened without unarming the system.

QC/DC

Quick Connect / Disconnect



David Construction for blind flange

Manouvre the blind flange safely to the side.

Light weight blind flange with handles

For easy handling the blind flange.

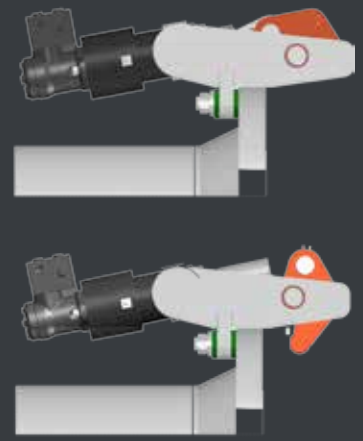
Rotation Limiter

Prevents fall over at ERC break.

Slewing Dive

For easy manoeuvre the TSA in front of the ship manifold and following ship movements.

The design of the JLA QC/DC allows for self alignment of the ship manifold flange



QC / DC

Our in-house QC / DC is developed to allow easy and hassle free connection and disconnection to the ship.

Bunkering Arms

Shore-to-Ship

The market demand for LNG as fuel is growing. Therefore bunkering facilities are required to store LNG fuel units and fuel ships with LNG.

JLA has developed two basic lines for bunkering:

- ship - to - ship Bunkering
- shore - to - ship Bunkering

The cryogenic bunkering arms are provided with the JLA swivel joints and have the same quality standards on safety and reliability as the CryoTec Marine Loading Arm. Since the throughput time of the bunkering is critical, JLA have developed bunkering arms that are easy to operate and flexible to manoeuvre.

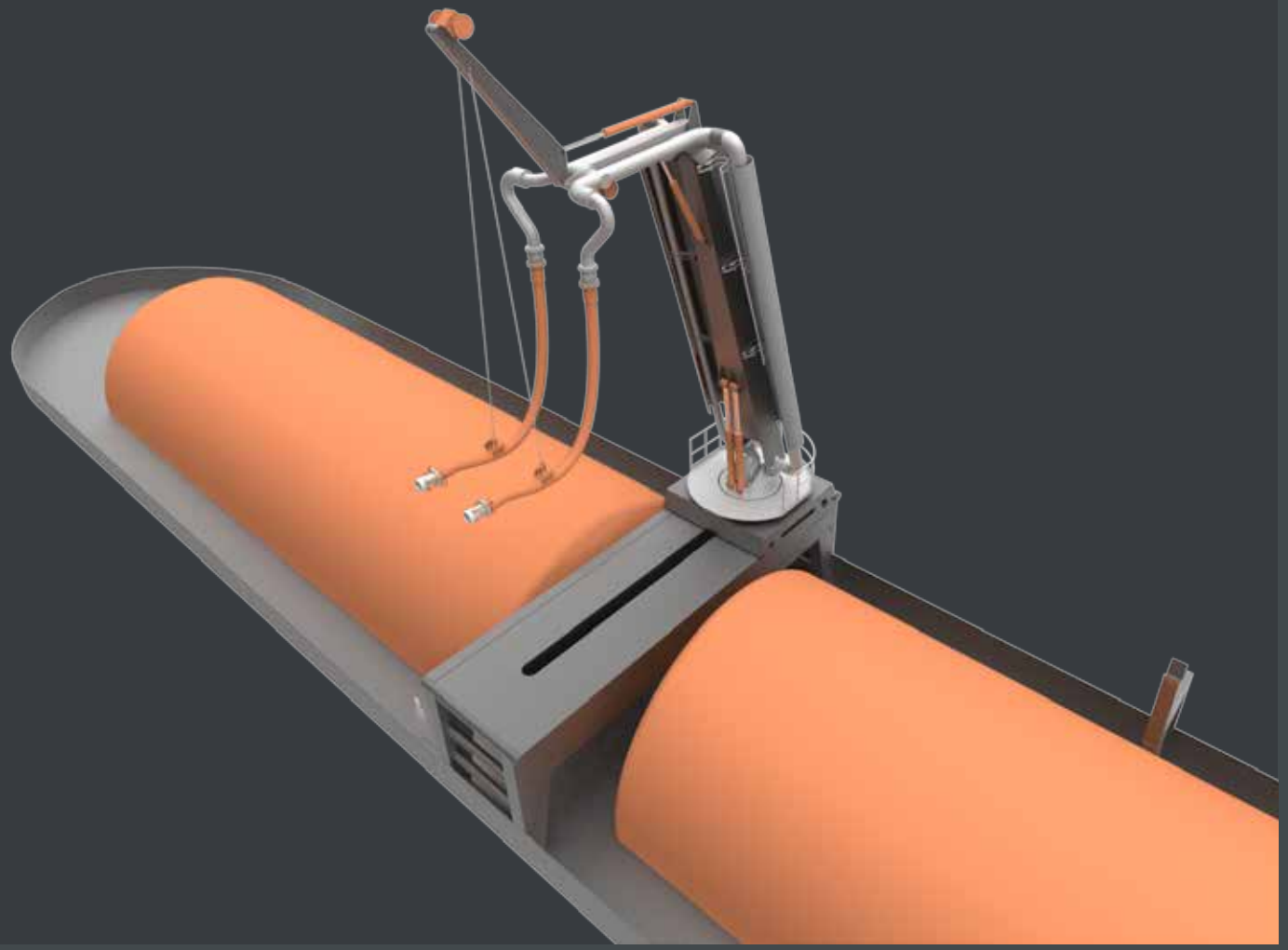
Bunkering Arms

Ship-to-Ship

With the JLA ship- to- ship bunkering arm, the ships do not have to moor at a LNG bunker terminal and they can save time by receiving LNG from a bunkering ship equipped with a JLA bunker arm.

Main CryoTec Bunkering Hose Loading Arm characteristics:

- Supported structure
- Cable-free design
- A minimum of four swivel joints in the product line
- Minimum pressure drop
- JLA ice fall off protection
- Container protection
- Minimum downtime
- Easy maintenance
- Minimum pressure drop



Truck / Train (un)loading

JLA apply the same principles and quality standards to the cryogenic loading arm for Truck and Trains, as are applied to the CryoTec Marine Loading Arm and the Bunker Arm. Most LNG trains and trucks are loaded and unloaded from the bottom of the vehicle.

JLA combined the robust features of the CryoTec with the flexibility from the JLA Bunker Loading Arm for shore-to-ship.

JLA cryogenic truck and train loading arm are characterized by:

- Supported structure
- Flexible reach of the hose
- Only four JLA swivel joints are required

Side and rear loading

With the flexible configuration for the JLA loading arm the trucks and trains can be loaded from both the side as from the rear.


ASIA ENERGY
NASSAU

After Sales Service

JLA's added value does not stop after design and delivery of the equipment. JLA can take on the entire project from the engineering up to commissioning and start-up. JLA's service does not even stop there, with their global force of service engineers and local sales offices, JLA are ready to advise and support their customers throughout the life cycle of the JLA equipment.

JLA services are characterized by:

- 24/7 call out service
- Delivery of spare parts
- Keep spare parts on stock
- Preventive Maintenance Inspections (PMI)
- Scheduled repair after PMI
- Accessories on existing equipment
- Revision
- Unscheduled breakdown maintenance
- Total Overhaul; On-site or in JLA Work shop
- Upgrade modification

The JLA service is coordinated from our different hubs, and the local sales offices and representatives provide direct and local vocal points for all your questions and inquiries.

Headquartered in The Port of Rotterdam, The Netherlands. Our HUB offices are located in Belgium, Germany and Saudi Arabia and Mexico.

JLA is represented globally in Belgium, Germany, Singapore, Malaysia, Thailand, Vietnam, The Philippines, Myanmar, South Korea, Oman, Saudi Arabia, Bahrain, Kuwait, Tunesia, Nigeria, South-Africa and Uruguay,.

For more information please visit our website at
jla-loadingarms.com

24/7
Call out service

Total Overhaul
On-site or in JLA Workshop

PMI
Preventive Maintenance Inspections

JLA Sales Offices and Workshops
Representation

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LOADING TECHNOLOGY

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