

# MARINE LOADING ARMS

ENGINEERED  
FOR GENERATIONS

**KANON**  
LOADING EQUIPMENT



# REALISED IN PARTNERSHIP





# TOGETHER WE ARE KANON

**As a family business specialising in the design, manufacture and installation of loading and unloading systems for marine, road and rail tankers, we employ our passion for loading systems to build relationships and add value to our customers operation. You can count on us for reliability, transparency and a long-term and sincere partnership.**

Based in the Netherlands, we are a true Dutch company at heart. The no-nonsense culture suits us. You will see this reflected in our approach. Together, we work hard to achieve the most effective loading result for your situation. Your goals are ours, we reach them together.

We operate on a worldwide basis via a well-trained network of carefully selected agents and associate companies, so there is always a contact near you that understands local requirements. Providing you with the best, durable solution for your application

takes precedent. Our loading systems are in use for the widest range of liquids and gases, from cryogenic to high temperature applications, including the most hazardous or corrosive fluids.

Wondering whether we have a solution for your application? We supply equipment directly to customers and through EPC contractors in all areas of the processing industry including chemical, petrochemical, storage terminals, pharmaceutical, healthcare, food and beverage.

# MAKING EFFECTIVE LOADING A PRIORITY

**Looking for a partner with an excellent reputation for developing a comprehensive standard and custom made loading systems?**

Through years of experience and knowhow we are well placed to give you the very best advice in liquid transfer systems. Ease of handling and safety for the operator and environment, as well as a reliable and durable performance, are the basics for the design of KANON equipment.

Your loading systems are developed by the KANON team of dedicated and experienced engineers, so you can be sure that the latest technology and guidelines are incorporated. A highly skilled service department provides

you with excellent worldwide service. Experienced VCA qualified service engineers are at your disposal to service, maintain and overhaul your loading equipment. You can benefit from their cross-discipline skills in hydraulics, pneumatics, mechanics and electronics, basically your one-stop shop. We uphold the highest quality standards and strongly believe in taking ownership when it comes to your loading results. Providing you with the best and most effective loading solutions is our priority.



# KANON MARINE LOADING ARMS

**Our loading arms are well-known in the field for their excellent ability to handle structural loads. For staying upright under external force, no matter the location of the loading operation, making for the most stable arms in the market.**

## **Symmetric and balanced double inboard construction**

From our vast experience in the field we know that loading arm stability is all about symmetry. In order to provide you with a reliable solution, the Kanon Marine Loading arm is designed and engineered with a unique parallel construction of which the piping itself is an integral part of the structure. The loading arms' counterweight acts as an opposite force and paired with the double, equal length inboard piping makes sure the loading arm is balanced in all directions. The unparalleled stability of our loading arms increases your loading reliability, and promotes a long service life.

## **The strongest link and easy maintenance**

Contrary to other loading arms in the market, the rotating parts on a Kanon Loading arm are conceivably the strongest feature of the arm.

Designed to be stronger than the piping and typically made of super duplex stainless steel, they are a robust link when subjected to structural loads and prevent leakage.

Efficient, high quality parts are inherent in our design ethic . We do not compromise when it comes to safety and efficiency for your loading operation: Our swivel joints are designed by our highly qualified R & D professionals and fully tested in line with the latest OCIMF guideline. Well known in the market, they offer excellent leakage prevention, machined ball races and a life-time lubrication. On top of that, the swivels and flanges are subjected to less force because of the stable construction of the loading arm, ensuring your loading system is of the utmost reliability.





# ADAPTIVE AND FLEXIBLE DESIGN

## MORE LOADING OPTIONS

The symmetric & light design of the Kanon Marine Loading Arm promotes the lowest dead weight force and moments on the ships' manifold and jetty in the market. This results in lower jetty construction costs, and an increased loading arm service life. Because of the elegant design and balanced weight distribution, more options for base plate dimensions are available. Such as in circumstances where operating space is limited.

The loading arms' design offers you the flexibility to have the loading system adapted to on-site loading conditions. An example of this being our creation of loading arms with the largest operating range in the industry, active in Cape Canaveral USA, where they add significant value to our clients loading efficiency.

### Operator favourite

Kanon marine loading arms showcases an easy, straightforward operation, well appreciated by operators in the field. Able to be single person operated, they offer manual or hydraulic control options, depending on the loading operation requirements. Since the balance of the arm is set for a lifetime, no field adjustments are necessary, saving you valuable operating time.

### Built to last

An excellent handling of structural loads, symmetric and elegant design, fewer yet higher quality parts: Kanon Loading arms are engineered for a long life-time in the field and offer you a wealth of loading possibilities as well as great loading efficiency.

All KANON equipment is manufactured fully in compliance with applicable codes & standards, e.g.:



# MLA270DI



As our frontrunner, the **PETROCHEMICAL MARINE LOADING ARM** is characterised by highly effective loading and unloading. Thousands of Kanon Petrochemical arms are currently active internationally, and showcase an unparalleled service life. In the unique symmetric design the piping is an integrated part of the support structure, not separated. The loading arm is balanced in all directions and engineered to withstand structural loads, prevent leakage and to be ultra low in maintenance. The rotating parts, such as our patented and continuously tested Kanon swivels and the dedicated flanges match the performance of the loading arm: they are robust and durable which is highly valued by our clients.

## FEATURES

- OVER 2300 UNITS IN SUCCESSFUL OPERATION
- NO SEPARATE SUPPORT CONSTRUCTION
- LONG LASTING SEALING
- LONG LIFE BALANCED
- EXTENDED SYMMETRIC TAILS



# MLA272CRYO

The **CRYOGENIC MARINE LOADING ARM** is developed to support shrinking and expanding occurrences in cryogenic applications. The state of the art material and the distinctive support frame design accommodates the warming up and cooling down process. Traditionally cryogenic arms are designed with cables and wheels: we improved the cryogenic marine loading arm design and integrated our rigid pantograph, an absolute operator's favourite since the balance does not need to be adjusted ever in the field.



## FEATURES

- RIGID PANTOGRAPH
- SUPPORT CONSTRUCTION
- INTEGRATED BEARING
- AUTO ENGAGED LOCKING SYSTEM
- CRYOGENIC ERS INSTALLED IN 115+ PLANTS

# MLA271HP



This **HIGH PRESSURE MARINE LOADING ARM**, typically for CNG applications and connected from an FSRU is designed with the understanding that maintenance should be minimised, because of the long term nature of FSRU connections. Based on our most successful model – double inboard, it is equipped with an extremely strong swivel joint, tested and suitable for pressures up to 225 bar, in 16". The light and elegant design is based on our extensive market know-how regarding maintenance and user-friendliness. It also showcases a QCDC with integrated ERC, for uncompromised and safe high pressure loading.

## FEATURES

- ERC WITH INTEGRATED HYDRAULIC QC/DC
- TESTED ON 250 BARG
- EXTENDED WARRANTY
- ROBUST BUT LIGHTWEIGHT
- RIGID PANTOGRAPH
- LUBRICATION CAN BE DONE WITHOUT DISCONNECTION / DE-PRESSURIZING

# MLA272CHEM

The **CHEMICAL MARINE LOADING ARM** is uniquely designed for highly corrosive or more toxic chemical service. It showcases a separate supporting structure with floating product piping within the self supporting frame. Full balance is provided by

means of a rigid pantograph link, which connects the outboard arm to the rotating counterweight. Special care is given to the rotating pivots of the pantograph bar, both in design and in material selection, thus ensuring smooth operation with minimum maintenance.



## FEATURES

- UNIQUE DESIGN
- ECONOMICAL

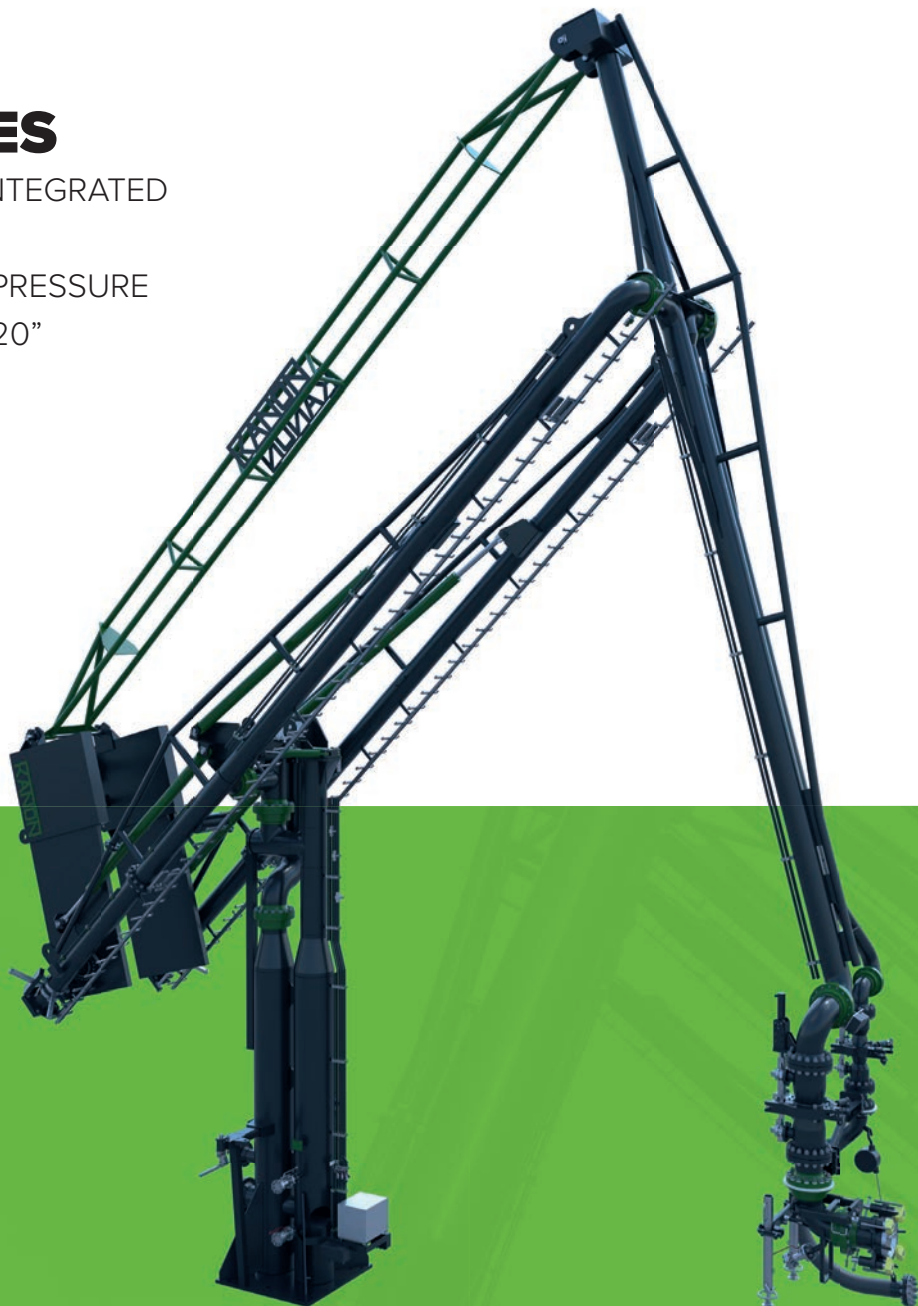
# MLA270VP

Displaced gas from loading can effectively be controlled by our MLA with a **RIGID VAPOUR LINE**. The high pressure design integrated in the structure of the marine arm itself, makes sure you can safely return harmful gases to be stored,

treated or disposed of in a safe way. Catered to accommodate a vapour line up to 20", its innovative design makes it a stable and effective way to integrate vapour return.

## FEATURES

- FULLY RIGID, INTEGRATED IN STRUCTURE
- HIGH DESIGN PRESSURE
- SIZING UP TO 20"
- INNOVATIVE DESIGN



# MLA270PB

A smart and cost effective way to manage displaced gas from loading is our MLA with a **PIGGY BACK VAPOUR LINE**. The hose firmly attached to the MLA frame, is also easily replaced after its service life, its slim design supports the ergonomic design of the Kanon MLA.

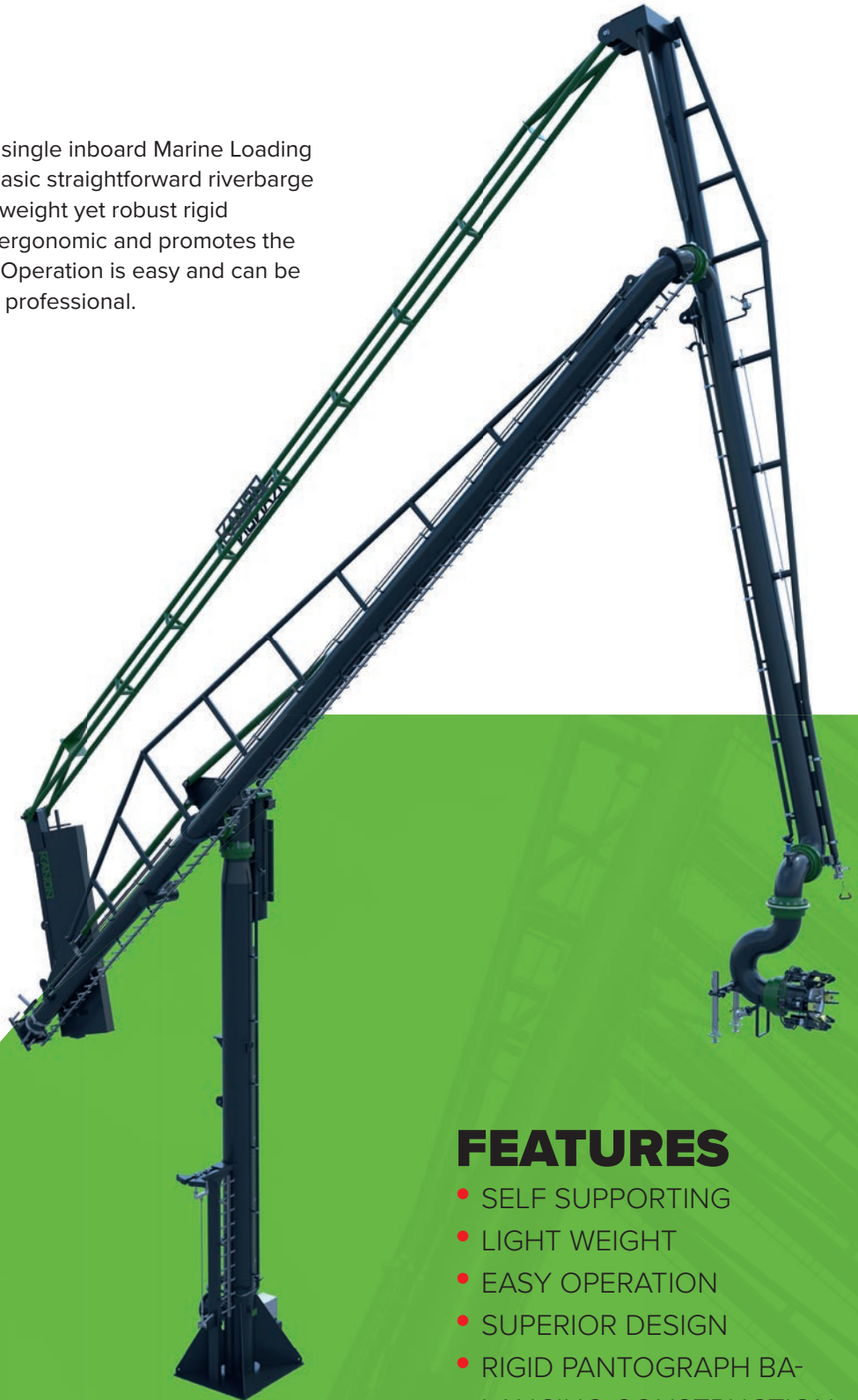


## FEATURES

- ECONOMICAL
- EASY HOSE REPLACEMENT
- SLIM DESIGN
- NO PRODUCT REMAINS IN THE PIGGY BACK HOSE DUE TO THE CAREFUL DESIGN THAT ELIMINATES ANY POSSIBILITY OF VAPOUR LOCK


# MLA260SI

A simple yet effective single inboard Marine Loading arm, suited for more basic straightforward riverbarge applications. The lightweight yet robust rigid pantograph design is ergonomic and promotes the safe transfer of fluids. Operation is easy and can be performed by a single professional.



## FEATURES

- SELF SUPPORTING
- LIGHT WEIGHT
- EASY OPERATION
- SUPERIOR DESIGN
- RIGID PANTOGRAPH BALANCING CONSTRUCTION



YOU ARE WELCOME TO VISIT OUR FACILITIES ANY TIME! A SHORT IMPRESSION OF OUR GLOBAL CAPACITY

# PRODUCTION FACILITIES

**Our production facilities in The Netherlands and Malaysia provide extensive capacity to uphold our priority to supply you with qualitative, safe and effective loading arms. Experienced and certified personnel make sure your loading arms are manufactured and tested according to the highest quality guidelines.**

## Head Office

Our Head Office is the Kanon nerve centre. The dedicated Kanon Team works in partnership with you to provide you with the most effective loading arms in the business.

## Biddinghuizen, The Netherlands

Our facility in The Netherlands has a testing capacity of up to 13 loading arms. The facility houses all necessary top quality welding, testing and other manufacturing equipment and a highly qualified staff.

## Kuantan, Malaysia

To cater to clients all over the world, a second and large, 30,000 m<sup>2</sup> production capacity is situated in Asia. Our Malaysian office is in close proximity to the production facility. They make sure production is up to the highest standards and liaise with our head office on a daily basis.



# STATE OF THE ART LOADING ARM ACCESSORIES

Explore some of the accessories we offer to complement your Kanon Marine Loading Arm. Our offers are accompanied by comprehensive advice on all our accessory options, catered to your particular situation.

## HYDRAULIC QC/DC

Hydraulic quick couplers offer the possibility of connecting the marine loading arm to the ship's manifold by means of a single push button, from a remote distance. They are known in the market as very robust and straight forward connectors.

- CENTRING GUIDE IN ORDER TO EASE ACTUAL MANIFOLD CONNECTION
- MANUAL RELEASE AT ALL TIMES

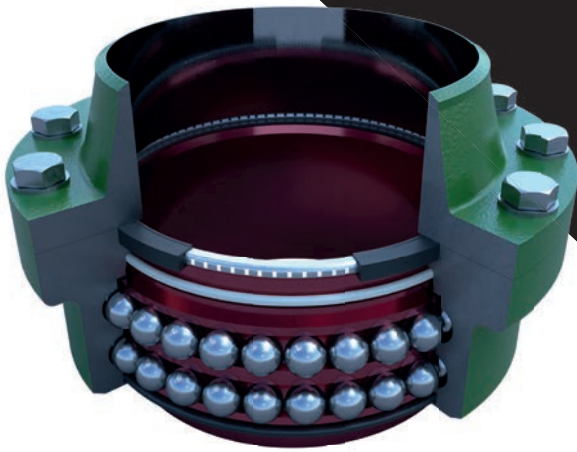


## EMERGENCY RELEASE COUPLER

The ERC is part of our range of Emergency Safety Systems (ESS). Designed to provide best possible safety in fluid loading/unloading when using Marine Loading Arms. An ERC provides a fully automatic, safe and spillage free disconnection of the Loading Arm from the ship should the limits of the safe working envelope of the Arm be exceeded.

- BALL VALVES
- ONE SINGLE HYDRAULIC CYLINDER
- ULTRA LIGHT DESIGN





ROBUST, SAFE  
& STRAIGHT-  
FORWARD

### SWIVEL JOINTS

The use of swivel joints in loading arms is critical because of the extraordinarily high bending and axial load combination, due to the reach of the loading arm and wind forces. Our swivel joints are developed to withstand all these loads providing the best performance with virtually zero leakage and maintenance.

- MACHINED BALL RACES, WHICH LAST FOR THE LOADING ARMS LIFETIME
- DUPLEX STAINLESS STEEL FOR THE INNER BODY IS APPLIED
- LONG LIFE LUBRICATION
- IN-SITU SEAL REPLACEMENT
- NO SNAP-IN BALL RACES

## A CLOSER LOOK AT SOME KANON LOADING ARM FEATURES

### COUNTERWEIGHT

Double rotating counterweight, in order to keep both inboard & outboard sections aligned and in perfect balance.



### PARALLEL

The parallel is the rigid link between the outboard section and the counterweights, a big advantage of the rigid structure is that the balance is set once in the factory and does not need to be adjusted in its entire lifetime.

# 7 REASONS TO BUY KANON

**1**

**PRACTICALLY ZERO MAINTENANCE**

**DESIGNED FOR ALL APPLICATIONS**

**2**


**3**

**GUARANTEED LOW COST OF OWNERSHIP**

**4**

**RIGID PANTOGRAPH, PROVIDING LIFETIME BALANCE**





**UNIQUE SWIVEL  
JOINT DESIGN  
RESULTING  
IN MAXIMUM  
UPTIME**

**5**

**LIGHT AND  
ERGONOMIC  
DESIGN**

**6**

**7**

**UNPARRALLELD  
ENGAGEMENT**

V.L.:20T

# CONTROL SYSTEMS

**A straightforward, safe and effective operation of your loading arms takes precedent in our control system design. We make sure you are in full control, with systems that suit your particular situation.**



## ELECTRIC - HYDRAULIC CONTROL SYSTEM

Our loading arms are typically operated hydraulically and controlled by means of a control cabinet provided with a P(rogrammable) L(ogic) C(ontroller).

Together with our partners (for 30 over years) Stahl / Electromach & Vydraulics we keep things simple, up to date and in accordance with the latest standards.

### Important features

- In-house manufacturing Exd, Exe and Exp cabinets.
- Complete product portfolio of Stahl
- In-house engineering/CAD/software/ Production/FAT.
- Certified Functional Safety Engineers (TUV)
- Control systems are certified in accordance with local laws; ATEC, IECEX, ETL, Kosha/ KGS, PESO, INMETRO, CCC
- Project specific design specifications
- Optimised solutions for the specific situation
- Combined Exde housings for easy installation field cables
- PLC based control systems such as Allen-Bradley, Siemens, HIMA etc.
- Easy communication to DCS trough; Ethernet TCP/IP, Modbus RTU, Profinet, Fibre Optic, etc
- Automatic start/stop of the pumps in the hydraulic power pack
- Multiple operating possibilities; Local control panel, Pendant and Radio
- Customised I/O
- Safety Integrated Loops

No big hydraulic powerpack is required due to customised cylinders that prevent oil displacement.





## HAZARDOUS AREA

### Important features

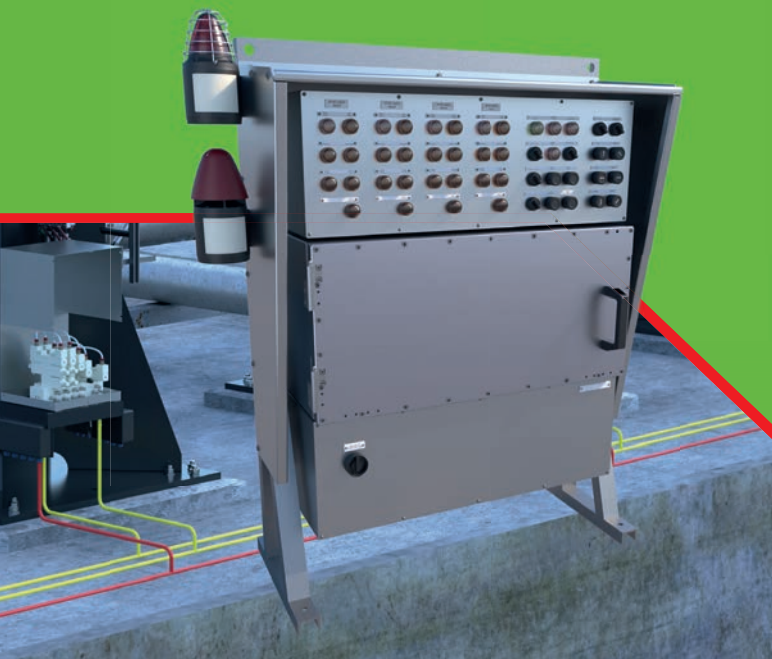
- Galvanised steel frame;
- Compact design;
- IP66;
- Exd housing made of copper free aluminium (special marine grade) or stainless steel;
- Stainless steel 316L control & terminal housing for easy maintenance and installation (field cables);
- Multi certified zone 1 solution for use worldwide (ATEX, IECEx, cETLus, PESO, KOSHA...)



## NON-HAZARDOUS AREA

### Important features

- Rittal VX25 based panel;
- Easy access and maintenance due to installation in safe area;
- With front access only or with front and rear access;
- Flexible design with possibility of combining multiple enclosures into one panel.
- Compact design;
- IP66;
- Stainless steel 316L control housing for easy maintenance and installation (field cables);
- Stainless steel station;
- Stainless steel protection cover;
- Multi certified zone 1 solution for use worldwide (ATEX, IECEx, ETL, PESO, KOSHA...)



# AFTER-SALES

Our fully equipped after sales department that understand your needs, is ready and standby to service your loading arms at any time, offering the following services:

- Installation
- Commissioning
- Supervision
- Annual Inspection
- Survey
- Maintenance, Repair & Modification
- Training on the job for operators and maintenance personnel
- Overhaul

WE WILL BOOST  
YOUR LOADING  
ARM UPTIME  
AND REDUCE  
YOUR COST OF  
OWNERSHIP





### **Experience**

Highly skilled and experienced service engineers are available to service and maintain customers' equipment. They all have the required knowledge of hydraulics, pneumatics, mechanics, and electronics. These service engineers each have a fully equipped service van at their disposal, including all necessary tools and spare parts.

### **Annual Inspection**

Kanon's inspection program ensures the performance of your equipment and includes preventive maintenance. Regular inspection will result in a lower cost of ownership and also safeguard the operator, the environment as well as your loading equipment.

Kanon subsequently issues a dedicated inspection report for each individual loading arm.



**SCC certified – managing your risk is our priority**

# GLOBAL PRESENCE

WITH OVER 2500 MARINE LOADING ARMS INSTALLED WORLDWIDE

ALGERIA  
ARGENTINA  
AUSTRALIA  
BAHAMAS  
BAHREIN  
BELGIUM  
BULGARIA  
CANADA  
CHILE  
CHILLI  
CHINA  
COLOMBIA  
CROATIA  
CUBA  
CYPRUS  
DANMARK  
EGYPT

ESTONIA  
FINLAND  
FRANCE  
GERMANY  
GHANA  
GREECE  
INDIA  
INDONESIA  
IRAQ  
ITALY  
JAPAN  
JORDAN  
KOREA  
LATVIA  
LITHUANIA  
MALAYSIA  
MEXICO

MOROCCO  
MOZAMBIQUE  
MYANMAR  
NEDERLANDSE ANTILLEN  
NETHERLANDS  
NEW ZEALAND  
NORWAY  
OMAN  
PAKISTAN  
PANAMA  
PERU  
PHILIPPINES  
POLAND  
PORTUGAL  
QATAR  
ROMANIA  
RUSSIA

SAINT LUCIA  
SAUDI ARABIA  
SAUDI ARABIA  
SOUTH AFRICA  
SPAIN  
SRI LANKA  
ST. EUSTATIUS  
SWEDEN  
THAILAND  
TURKEY  
UKRAINE  
UNITED ARAB EMIRATES  
UNITED KINGDOM  
UNITED STATES  
VENEZUELA  
VIETNAM



**CONNECT WITH**  
**LOADING EXCELLENCE**



# YOU CAN RELY ON OUR LOADING ARMS

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