

LAND EQUIPMENT

**BOTTOM LOADING
TOP LOADING
SAFETY EQUIPMENT**

KANON
LOADING EQUIPMENT

2500L



LAG

14000L

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 cars, 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.

COMMITTED
TO EXCEL

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 and maintain 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.



LAND EQUIPMENT

LAND LOADING ARMS AND SAFETY EQUIPMENT FOR EFFICIENT STORAGE CONNECTIONS

Land Equipment to fit your requirements

Providing you with a loading solution that is both safe and effective is achieved together. We have partnered with clients in Marine- Road and Rail liquid transfer all over the world to provide a wide range of tailor made loading solutions. As your experienced go-to loading arm supplier, we design, manufacture and deliver a loading solution to match your unique requirements.

Land Loading Equipment from Kanon consists of specially designed Land loading arms which are used to fill up the trucks and rail cars from the top or the bottom. They ensure efficient loading/unloading, are adaptable to your particular situation and very easy to use.

Communication and experience

At Kanon, we don't just supply a loading arm, we keep in close contact with you to provide a solution. The process of discussing the situation and proposing options eventually leads to the best possible solution for your current situation, to fit your requirements.

Using our expertise we will, in continued cooperation with you, determine what type of loading arm will be the best and most viable solution. Safe loading systems regardless of the nature of the liquids or gasses; toxic, corrosive or extremely high or low in temperature, Kanon loading Equipment has a long history in providing loading systems for all kinds of liquids and gasses connecting rail tankers to tank storage units. They ensure efficient loading and unloading and are easy to operate. In our wide portfolio of loading arms we can distinguish the bottom- and top loading arms.





YOUR CUSTOM BUILT LOADING SOLUTION

Bottom Loading Arms

Our bottom loading arms are widely used in the world. A BLA is a bottom loading arm which is used to load- or unload the truck or rail car from the bottom. Kanon bottom loading arms will provide you with a safe and reliable loading/unloading solution, as the loading arms will be engineered to your requirements. Due to our 40+ years of experience, our engineers can always find a viable solution.

Top Loading Arms

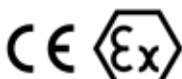
As a result of the widespread use of our top loading arms, we have gained valuable experience that we employ for the benefit of our clients. By using a top loading arm you can

load/unload the truck/rail car in a safe and easy way from the top. The lengths of our loading arms can be made suitable for single or multiple manhole loading with matching safety equipment configurations.

Safety Equipment for truck or train access

As safety is of the utmost importance in the loading industry, we provide a wide range of safety equipment for protected access to trucks or rail cars. Our folding stairs, safety cages and elevating platforms are designed to ensure a secure working environment as well as promote easy access for your operators.

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



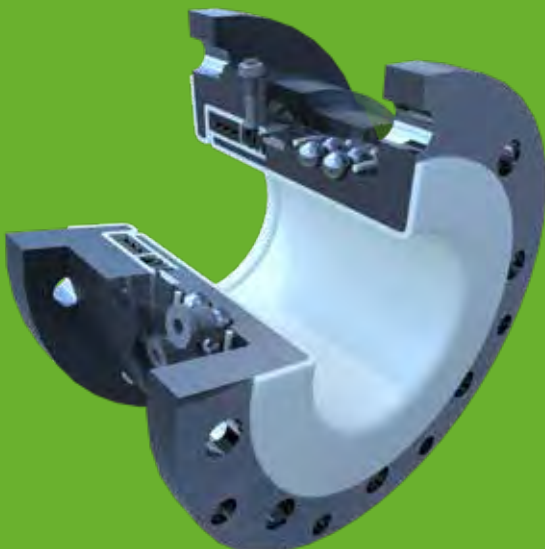
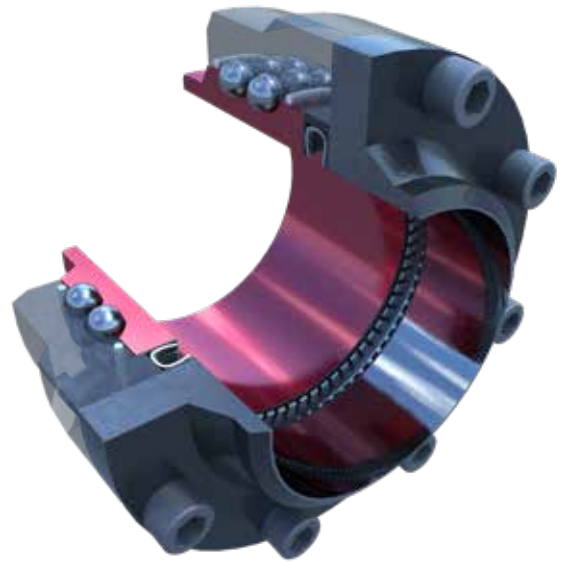
TOP QUALITY RELIABLE SWIVEL JOINTS

A KEY FEATURE OF KANON LOADING ARMS

At Kanon, we are always finding ways to be innovative and are continuously looking for the best solution for our loading arms. We find our swivel joints are not just an accessory; they are a key feature in our loading arms. The swivel joint connects the rigid piping in such a way that they can manoeuvre very easily horizontally and vertically. Besides the fact that our swivel joints make our loading arms easy to move and adaptable to different kinds of situations, it is of the utmost importance that they can withstand the extraordinarily high bending and axial load combinations due to the reach of the loading arm and wind forces, without leaking. Our swivel joints are designed, engineered and manufactured for handling a wide variety of liquids and gases in the chemical, petrochemical and oil and gas industries.

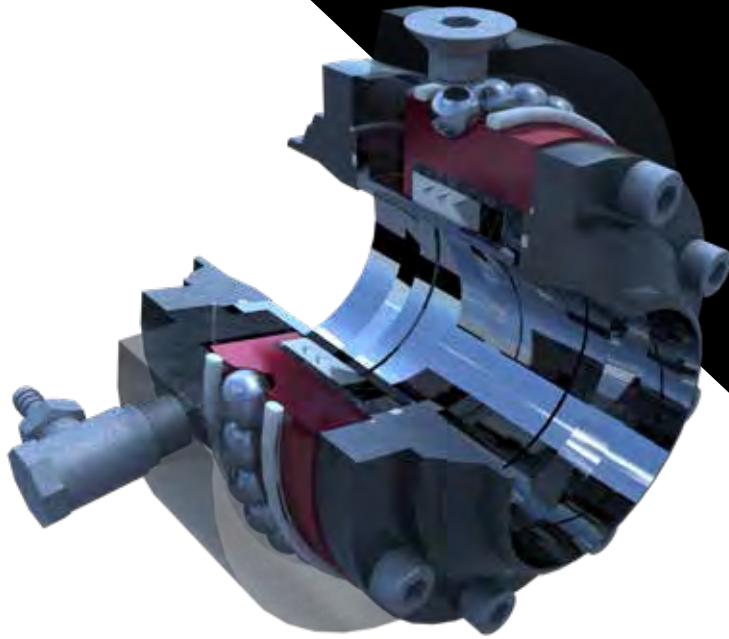
SAN831

Our Swivel Joint type SAN831 is our most commonly used swivel joint for a variety of liquids and gases. The main components of the swivel joints are the outer body, inner body, flange and product seal. The swivel joint consists of 4 point contact double ball races, which make sure the swivel has a high load bearing capability. The material and the product seal will be determined according to the product that needs to be loaded.



SRL825

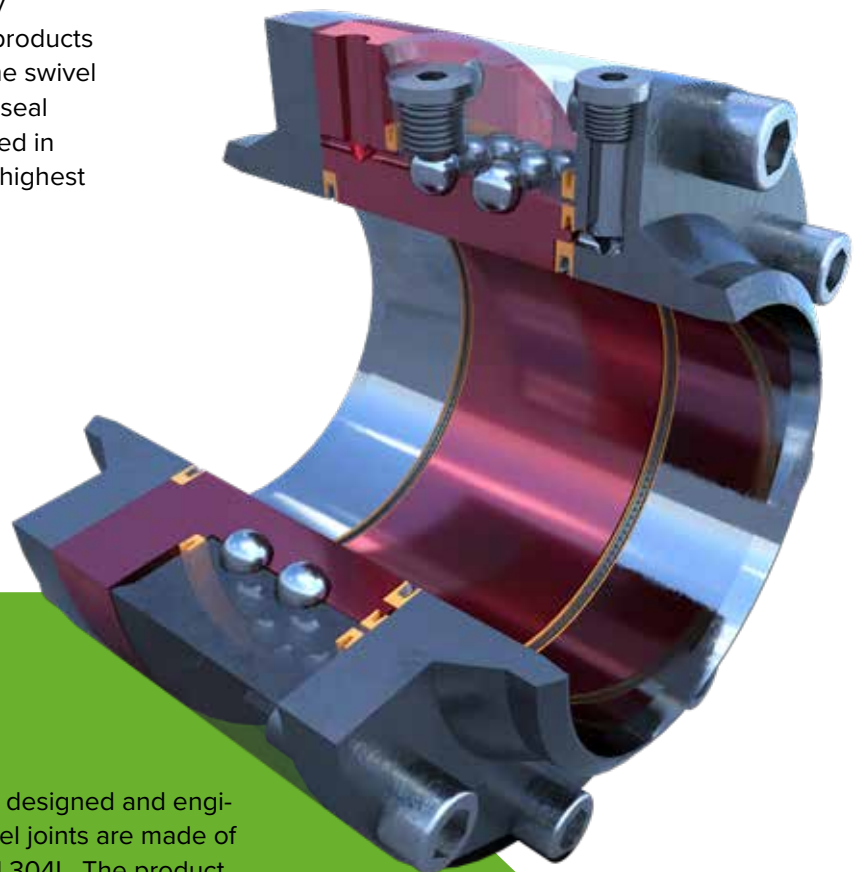
Our Swivel Joint type SRL825 is specially designed and engineered for the extreme aggressive products such as hydrochloric- and sulphuric acid. The swivel joint is internally equipped with a PTFE-lining and a PTFE product seal therefor the product does not come in contact with the steel parts of the swivel joint, even with the most aggressive products it is safe to load.



ROBUST,
SAFE &
RELIABLE
DESIGN.

SRS822

Our Swivel Joint type SRS822 is specially designed and engineered for high-toxic products such as chlorine or methyl mercaptan. The swivel joint is equipped with an inner and outer seal bushings. These bushings can be executed in Hastelloy-C and AISI 316L. Even with the highest level of toxic products, it is safe to load.



SAC817

Our Swivel Joint type SAC817 is specially designed and engineered for cryogenic purposes. The swivel joints are made of austenitic stainless steel AISI 316L or AISI 304L. The product seal is made of UHMW-PE, which has exceptional compatibility with cryogenic products such as LNG and LPG. Even with temperatures of -196°C , our Swivel Joint SAC817 is easy to operate.

BOTTOM LOADING ARMS DESIGNED TO MEET YOUR NEEDS

Kanon bottom loading arms are designed for safety in tank or truck loading operations. They are adaptable to your tanker size and liquid type and are engineered to meet your requirements. From food applications for clients such as Nestle or Heineken to (Petro-)chemical clients such as Shell, Saudi Aramco, Dow & Ineos, we are well-respected in the industry for our fully custom-built loading arms but can also supply more basic solutions.

Bottom loading arms for a safe transfer operation

A tank or truck loading operation may involve certain risks, such as spillage, hazardous vapours, overfilling and ergonomics. All these and more have to be taken into account when acquiring a loading arm.

Swivel joints

As a standard, our Bottom Loading Arms are equipped with five or six swivel joints and a balancing system (multi balance spring cylinder). In case the weight of the design requires it, our bottom loading arms are provided with a horizontal balancer to ensure a horizontal pipe connection. On top of that, we offer a large number of accessories to make sure your loading arm meets the highest safety and project requirements.

TRANSFER TYPES

Open loop transfer

When open loop transfer is allowed for loading or unloading your product, a single loading arm is applicable if the tanker system has a vacuum pressure relief system, a vacuum brake valve or other means to protect against vacuum or overpressure.

Closed loop transfer

In case of a closed loop transfer, double loading arms are usually applied, also known as “Bottom Loading Stations”. One loading arm is used for liquid transfer and a second manages the vapour / gas balancing between the tank storage systems.



BLS144/145



A Bottom Loading Station will provide you with a safe and reliable loading/unloading solution in case it is required to load/unload the truck or rail tanker from the bottom. It can be connected to the side or rear of the bottom of the truck or rail car. This type is used for closed loop transfers, with one loading arm for the liquid transfer and one loading arm for the vapour recovery. Commonly used for products such as: Ammonia, LPG (Liquefied Petroleum Gas).

KANON BOTTOM LOADING ARM FEATURES

- ERGONOMIC DESIGN
- EASY TO USE FOR OPERATORS
- ADAPTABLE TO YOUR LOADING SITUATION
- SAFE TO USE FOR OPERATORS
- AVAILABLE IN 2", 3", 4" AND 6"
- A WIDE PORTFOLIO OF ACCESSORIES

THESE ARE JUST A SELECTION OF OUR SCOPE OF WORK. KANON DESIGNS AND DELIVERS CUSTOM BUILT LOADING SOLUTIONS FOR YOUR PARTICULAR CHALLENGE.

BLA145

The bottom loading arm type BLA145 is the most commonly used type of loading arm for road and rail applications. The loading arm can be equipped with various types of accessories and couplers for easy connection.



BLA341

The bottom loading arm type BLA341 is often used when the connection space from below is limited. Due to its design, the bottom connection can be made from above. An additional benefit is that the arm is self-draining. The loading arm can be equipped with various types of accessories and couplers for easy connection.

BLA146

The bottom hose loading arm type BLA 146 is commonly used for loading / unloading of fuels such as gasoline and diesel. In order to easily reach the connections on the multiple compartment tankers, the bottom hose loading arms are very flexible and can easily cross over each other.



BLA152

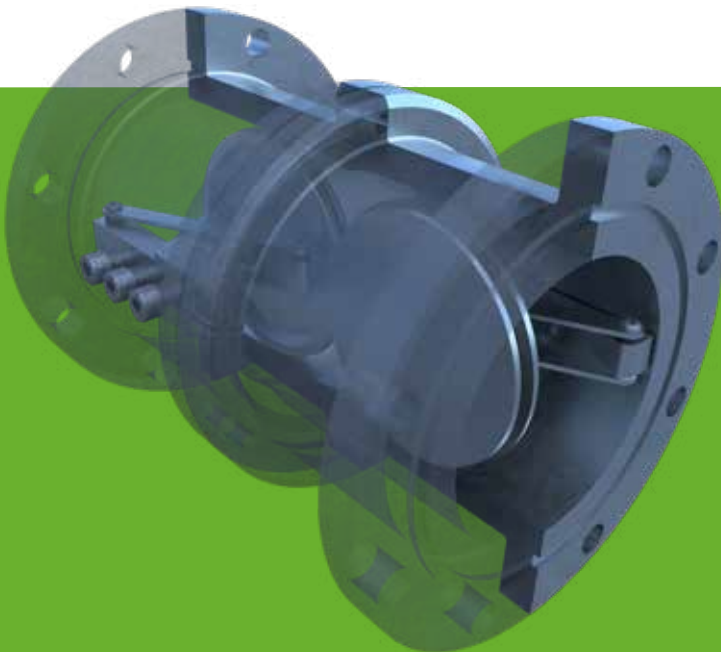
The bottom loading arm type BLA152 is used for long range bottom loading. Due to its design, the loading arm can cover a large working envelope. On request, the drop pipe can be replaced by a hose, which allows for more flexibility and range and ensures the operator is able to reach the desired connection points.

SELECTION OF BOTTOM LOADING LOADING ACCESSORIES

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

TRACING & INSULATION

When transferring a product (liquid) that requires a specific temperature to be maintained, we can install electrical tracing and insulation on the bottom loading arm. We can ensure that the specified product does not harden in the loading arm by using electrical tracing that is able to maintain a maximum hold temperature of 150°C. The insulation will be covered with protection plates. We will apply the tracing and insulation in such a way that the loading arm is still very easy and manoeuvrable to use.



SAFETY BREAK VALVE

To ensure a safe environment, we can apply our Safety Break Valve. As you do not want any spillage of hazardous chemicals or pollution from toxic hazards we recommend implementing a Safety Break Valve to make sure risk is minimized. In case a truck or rail car drives away before the loading arm is disconnected, the safety break valve safely detaches the loading arm, thereby preventing spillage.

ROBUST, SAFE & STRAIGHT- FORWARD

MAIN VALVE

The purpose of the main valve is to shut off the product in the loading arm. The valve can be placed in several areas of the loading arm; it depends on what you require. There are many valves, though the most commonly used are the Ball valve and the Butterfly valve. These can be executed in multiple materials such as carbon steel and stainless steel.



COUPLER

In many occasions a coupler is required on the bottom loading arm, we can apply a wide variety of couplers on the bottom loading arms. For instance a Dry Disconnect Coupler is in high demand, especially due to the spillage free design. This particular coupler is available in different materials such as stainless steel, with special handles and/or connection/detection sensors. Besides the DDC couplers we can apply simpler couplers such as TW couplers as well.

SOME OF OUR OTHER OPTIONS

- DRAIN CONNECTION + VALVE + HOSE
- PURGE CONNECTION + VALVE + HOSE
- OVERTRAVEL DETECTION
- JACKETING OF THE LOADING ARM
- HORIZONTAL BALANCER
- STORED POSITION DETECTION

TOP LOADING ARMS ADAPTABLE TO YOUR SETTING

Kanon Top Loading Arms are designed for the transfer of liquids through the topside of a truck or rail car. This can be accomplished via an open, semi-closed or closed connection, depending on how toxic or hazardous the liquids or liquified gases are. We are well equipped to provide you with a safe loading solution, adaptable to your particular situation.

Tank or truck loading arm

A tank or truck loading operation may involve certain risks, such as spillage, hazardous vapours, overfilling and poor ergonomics. All these and more have to be taken into account when you acquire a loading arm.

Top loading arm designed to meet your needs

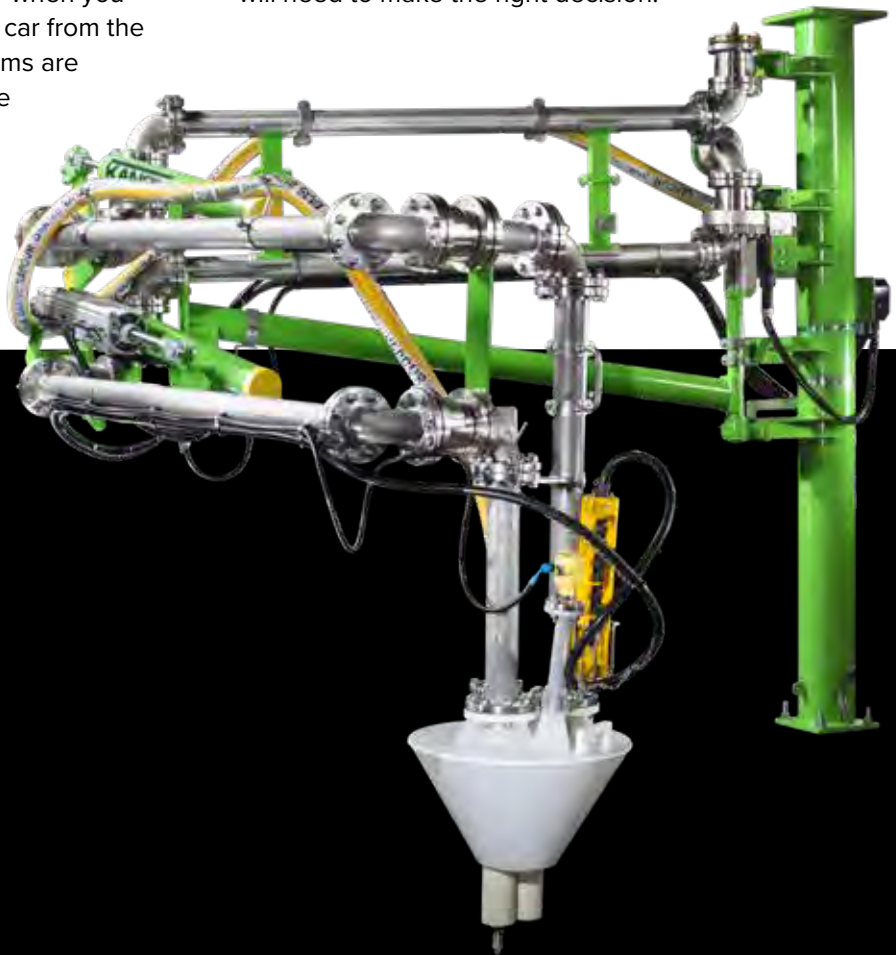
As loading situations are often very different from each other, we can provide a loading solution that is adaptable to your situation. Top loading arms are necessary when you will need to fill your truck or rail car from the top. Because our top loading arms are used all over the world, we have a wealth of experience that we employ to your benefit. With a top loading arm, you can load and unload the truck or rail car in a safe and easy way from the top.

When you have a specific product that needs to be loaded, we can advise you on the type of top loading arm and materials you will require.

The best solution for your challenge?

You want to find the best solution for your challenge. Kanon cares about engineering the best loading equipment for you. From 40+ years of experience in tailor-made loading solutions, we help you make an informed decision. No strings attached, transparency is key.

Ask us, we will give an honest answer. Provide you with all the information you will need to make the right decision.



TLA343



When loading a toxic or hazardous product, our top loading arm type TLA343 is an excellent option. This is due to the additional vapour hose that is attached to the loading arm and ends in the cone. In this way we ensure a safe and secure loading situation for your operators. The cone and vapour hose will absorb the toxic or hazardous vapours, protecting your operators.

TOP LOADING ARM FEATURES

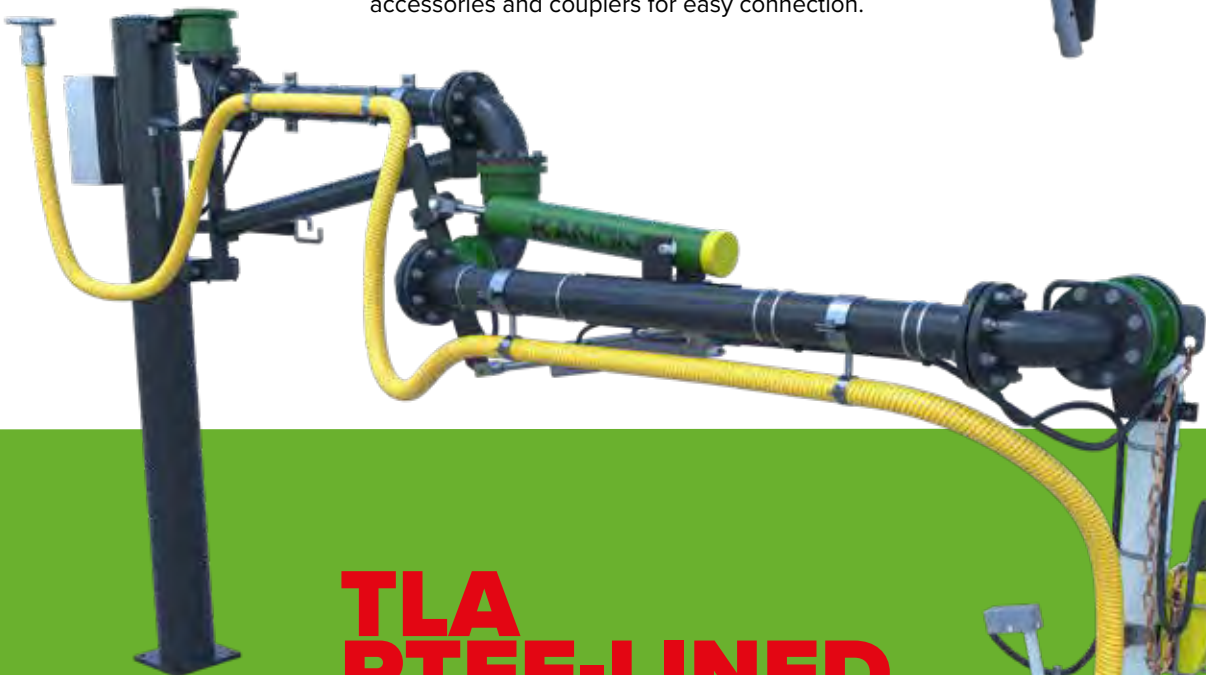
- ADAPTABLE TO YOUR LOADING SITUATION
- SAFE TO USE FOR YOUR OPERATORS
- A WIDE PORTFOLIO OF ACCESSORIES
- SIZES AVAILABLE IN 2", 3", 4" AND 6"
- ERGONOMIC DESIGN
- EASY TO USE FOR YOUR OPERATORS

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TLA341

From chemical, petrochemical to the food industry, the TLA 341 is the most commonly used type of top loading arm for road and rail applications. It is designed with a multi balance spring cylinder and 4 swivel joints, which makes it particularly operator friendly. The loading arm can be equipped with various types of accessories and couplers for easy connection.

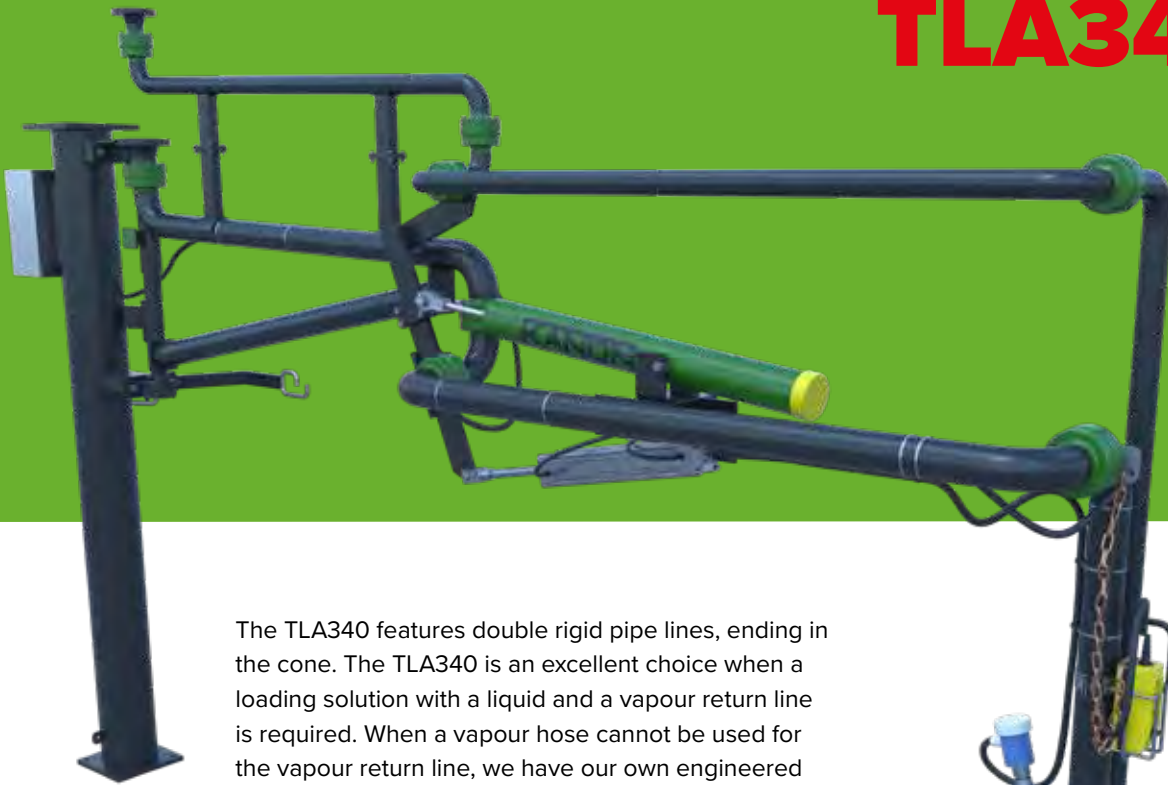


TLA PTFE-LINED

In case you need a loading solution for extreme aggressive products such as hydrochloric- and sulphuric acid, our PTFE-Lined loading arms will unburden you. As the product wetted parts of the loading arm are executed with a PTFE lining, the product can be safely loaded.



TLA340



The TLA340 features double rigid pipe lines, ending in the cone. The TLA340 is an excellent choice when a loading solution with a liquid and a vapour return line is required. When a vapour hose cannot be used for the vapour return line, we have our own engineered TLA340.



TLA346

The TLA 346 is particularly suited for confined spaces, due to its ergonomic design. Equipped with three swivel joints for safe and easy manouverability. This arm is mostly used in the chemical, petrochemical and food industry.

SELECTION OF TOP LOADING ARM ACCESSORIES

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

TRACING & INSULATION

When transferring a product (liquid) that requires a specific temperature to be maintained, we can install electrical tracing and insulation on the top loading arm. We can ensure that the specified product does not harden in the loading arm by using electrical tracing that can maintain a maximum hold temperature of 150°C. The insulation will be covered with protection plates. We will apply the tracing and insulation in such a way that the loading arm is still very easy and manoeuvrable to use.



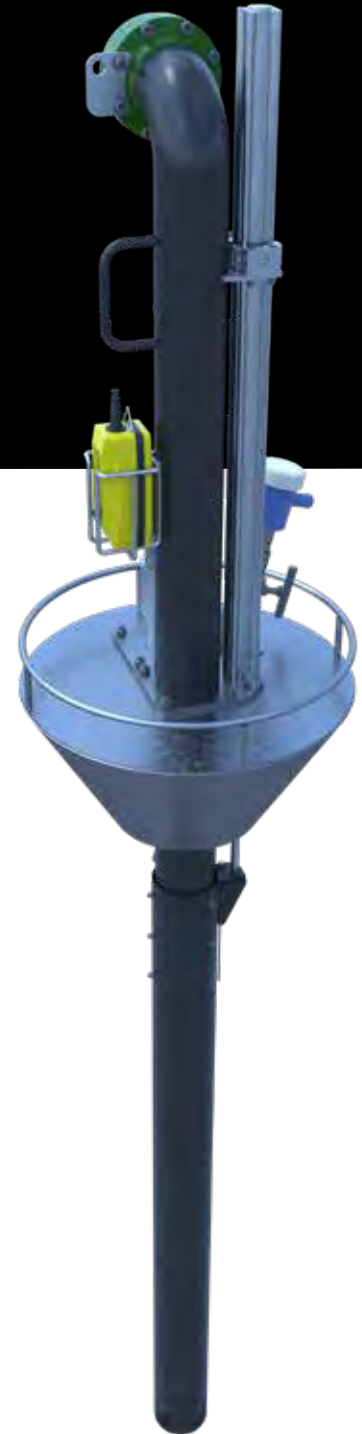
TOP LEVEL CONTROL

If you want to know when the tank or truck is full, it would be wise to add a top-level control system. We can apply either a pneumatic or electrical top-level control. A pneumatic top-level control consists of a bubble pipe with a tube mounted piggyback style that needs a little (0.15 bar) pressure flow that will detect the level of the liquids in the truck. The electrical top-level control has the same principle, though with an electrical sensor that will send a signal to your DCS.



PNEUMATIC CONTROLS

Pneumatically operated loading arms provide an easy and safe way to operate the loading arm. Horizontal and/or vertical movements are carried out by means of pneumatic cylinders or gear drives with pneumatic motors. These can be operated via a joystick, pendant or by a control panel. When a truck is being loaded a press down function is a suitable option, so there won't be a gap between the loading arm and the truck.



TELESCOPIC DROP PIPE

With the addition of the telescopic drop pipe you are able to manually or pneumatically lower the C-pipe to the bottom of the truck/rail car. This will ensure that your product does not foam or splatter in the truck or tank.

SOME OF OUR OTHER OPTIONS

- CONE
- PLATE DEFLECTOR
- ANTI-DRIP VALVE
- DRIP TUNDISH/BUCKET
- MECHANICAL LOCK-DOWN
- VERTICAL BALANCER
- SAFETY BREAK VALVE
- MULTI-SPRING BALANCE
- CYLINDER/COUNTERWEIGHT
- JACKETING OF THE LOADING ARM
- STORED POSITION DETECTION

SAFETY IN LOADING

A loading operation has to provide access to all truck or rail car, whatever their size. Often, a single operator is managing loading, unloading or inspection activities. Apart from safety rules and regulations you care for your operators and want to ensure all activities can be safely executed. Kanon safety equipment is designed according to our clients requirements and successfully in operation worldwide.

Folding Stairs with Safety Cages

KANON Folding Stairs provide the safe and efficient connection between your loading platform and the top of a truck or rail car, safety cage or elevating platform. The folding stairs are executed with a spring balanced design to safely fold in or out. This design makes them easy to operate and enables a single operator to manage loading, unloading or inspection activities. Handrails are fitted as a standard and adjustment to tanker height is automatic. Kanon Folding Stairs are built according to the latest

safety requirements and available in 3, 4, 5 and 6 step models.

The folding stairs can be equipped with different types of control such as a Manual, Pneumatic, Hydro-Pneumatic and Hydro-Electric operation. They are designed to be low-maintenance and engineered using non-corrosive materials. To ensure a safe working environment for your operators, a safety cage can be acquired to complement your folding stairs. Thereby minimizing dangerous situations for your operators while working in heights.



ROBUST, SAFE
& STRAIGHT-
FORWARD



ELEVATING PLATFORM AND FLEX CAGE

The Kanon Elevating Platform as well the Flex Cage is used to achieve safe access of truck and rail cars.

Adjustable Elevating Platform

To make sure your operator does not have to walk on top of the tank, we created a fenced platform with multiple hatches that can be opened to reach the manhole in a safe way. The platform is adjustable to the tanker incline. It is hydraulically raised and lowered and easily operated. There are several options for the finishing of the platform such as galvanizing and painting.

Flex Cage for ultimate safety

One of our latest safety equipment solutions, the Flex Cage, showcases an electronically driven safety cage that restricts the operating space to the exact operating location on top of the tanker. Besides following the incline of the tanker, it moves sideways as well, for more precision.

Both the Elevating Platform and the Flex Cage make sure your operator can carry out their activities in the safest way possible.

1

**PRACTICALLY ZERO
MAINTENANCE**

2

**DESIGNED
FOR ALL
APPLICATIONS**

3

**GUARANTEED
LOW COST OF
OWNERSHIP**

4

**MULTI SPRING
CYLINDER PROVIDING
DURABLE BALANCE**

7 REASONS TO BUY KANON



6

**LIGHT AND
ERGONOMIC
DESIGN**

7

**LONG-TERM
PARTNERSHIP**

5

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

ENGINEERING FOCUS ON QUALITY FROM EXPERIENCE

A dedicated engineer, part of the Kanon team of qualified and experienced mechanical engineers, designs and develops your loading system. The team uses the latest inventor 3D CAD software technology, combined with their extensive product know-how. Kanon has built up a team of engineers who, through years of design experience, are well aware that each project differs in requirements. With attention to detail they develop systems to meet the challenges that your particular situation sets.

Meeting Industry Guidelines

Consistently, Kanon Mechanical Engineers work according to industry guidelines, such as PED pressure norms and the Machine Directive. Furthermore, the Kanon quality management system meets the requirements of the ISO 9001 quality system. Our engineers are adapt in working on R&D project elements and alternatively, each day, our dedicated R&D

department works on developing intricate, yet practical future-forward solutions.

Quality is key

The aptitude of our engineers is best reflected in the way they contribute to the Kanon quality philosophy. They are all intrinsically motivated to develop custom-made durable, low-maintenance loading systems to meet your project needs.





AFTER-SALES

Our fully equipped after sales department that understands 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

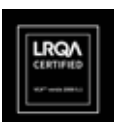
Experience

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 10.000 TRUCK AND TRAIN LOADING ARMS INSTALLED WORLDWIDE.

- | | | | |
|----------------|------------|--------------------|----------------------|
| ALGERIA | FRANCE | MOROCCO | SLOVAKIA |
| ARGENTINA | GERMANY | MOZAMBIQUE | SLOVENIA |
| AUSTRALIA | GREECE | NETHERLANDS | SOUTH AFRICA |
| AUSTRIA | HUNGARY | NIGERIA | SPAIN |
| AZERBAIJAN | INDIA | NORWAY | SRI LANKA |
| BELGIUM | INDONESIA | OMAN | SURINAME |
| BULGARIA | IRELAND | PAKISTAN | SWITZERLAND |
| CANADA | ISRAEL | PHILIPPINES | SWEDEN |
| CHINA | ITALY | POLAND | TAIWAN |
| COLOMBIA | JAPAN | PORTUGAL | THAILAND |
| CROATIA | KAZAKHSTAN | DOMINICAN REPUBLIC | TRINIDAD & TOBAGO |
| CURACAO | KOREA | ROMANIA | TURKEY |
| CZECH REPUBLIC | LATVIA | RUSSIA | UKRAINE |
| DENMARK | LITHUANIA | SCOTLAND | UNITED ARAB EMIRATES |
| EGYPT | MACEDONIA | SERBIA | UNITED KINGDOM |
| ESTONIA | MALAYSIA | SAUDI ARABIA | UNITED STATES |
| FINLAND | MEXICO | SINGAPORE | VENEZUELA |



**CONNECT WITH
LOADING EXCELLENCE**

YOU CAN RELY ON OUR LOADING SOLUTIONS

KANON LOADING EQUIPMENT BV

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KANON LOADING EQUIPMENT B.V.

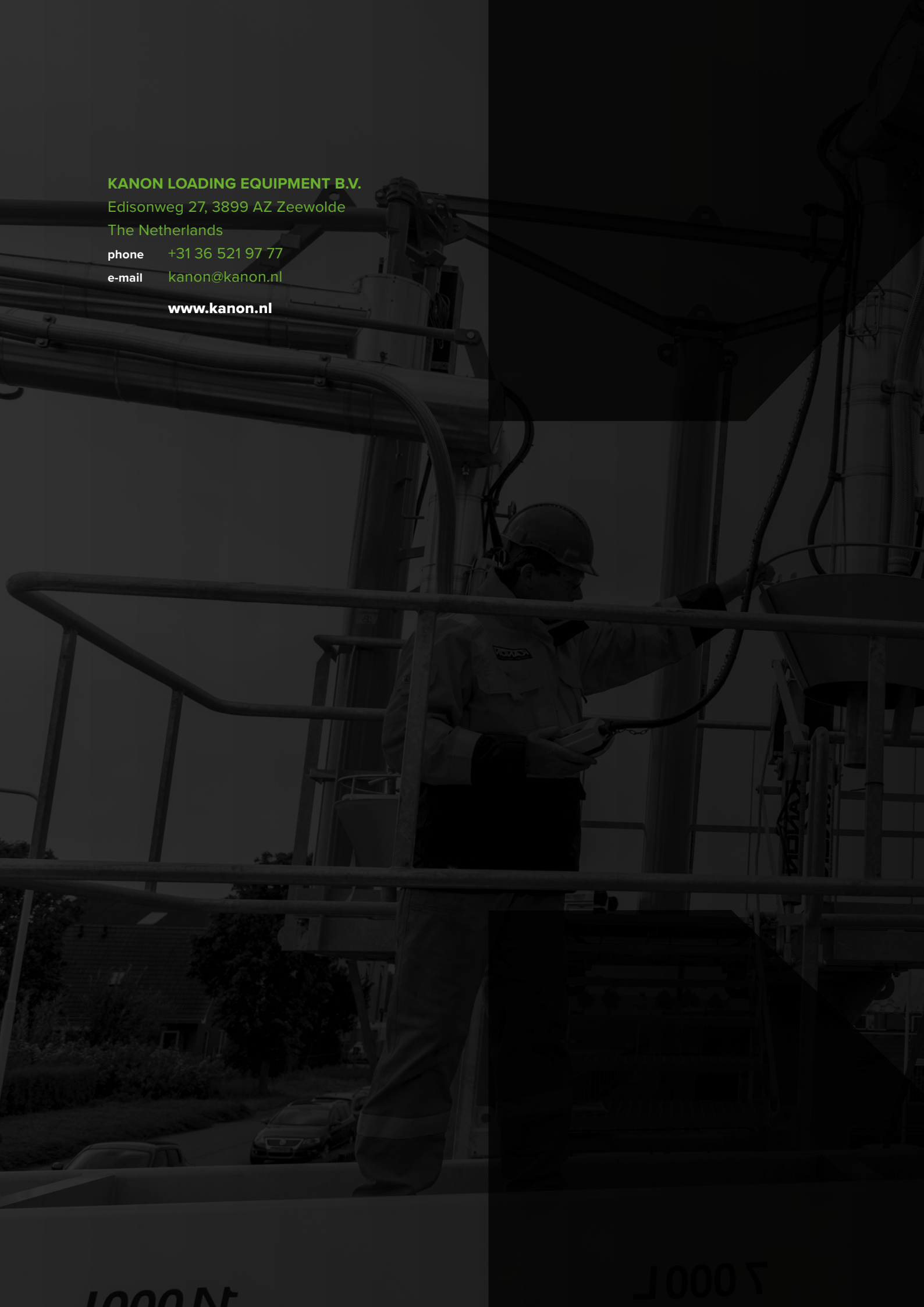
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