

天道酬勤  
科技兴邦

**Lianyungang Teampower Technology  
Development Co. Ltd.**

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**EXPERT IN TANK TERMINAL  
LOADING AND UNLOADING ARM  
SYSTEM**





TEAMPOWER

# Company Introduction



Office & R&D Center



Manufacturing Site



Web: [Loadingarm.c2csingapore.com](http://Loadingarm.c2csingapore.com) Email: [info@loadingarm.c2csingapore.com](mailto:info@loadingarm.c2csingapore.com) Whatsapp +65 91275988 Wechat: +86 13816118699





TEAMPOWER

# Company Introduction

Founded in 2005, Teampower Technology is one of the most well-known manufacturers of loading arm equipment and in China. We are the leader in in China in terms of production and sales of land based loading arm for five consecutive years.

The company has provided high-quality products and services for MNCs such as Sinopec, PetroChina, CNOOC, ChemChina, Sinochem and many world-renowned enterprises such as Total, BASF, Elf, and Vopak. Our product were exported all over the world including Kazakhstan, Vietnam, Sudan, Egypt, Chad.

Focusing on the safety and environmental protection of the oil and gas storage and transportation industry, Teampower Technology has jointly established a petrochemical storage and transportation equipment R&D center with China Academy of Safety Science and Technology & Sinopec Qingdao Safety Engineering Research Institute to pioneer the development of equipment for air pollution control, and has developed a series of patented products and achieved good results.

Teampower Technology is a Chinese high-tech enterprise and a national specialized enterprise. We are ISO9001, ISO14001 and ISO18001 certified.

Our innovative loading and unloading equipment result in our leading position in China, our locking sealing device is truly zero emission solution, with more than 23 invention patents. The patent pending tanktruck/railcar sealing technology are proven in more than 100+ project with MNCs such as Sinopec,

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Petrochina.





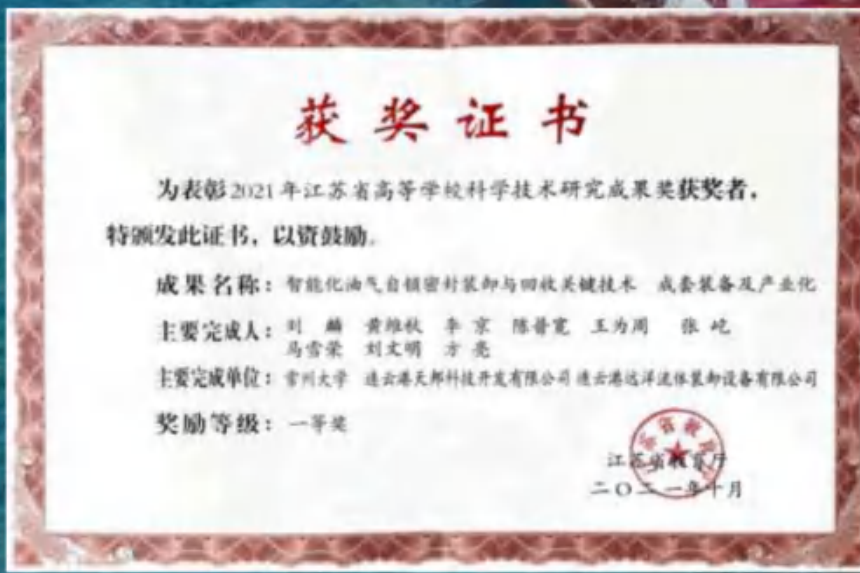
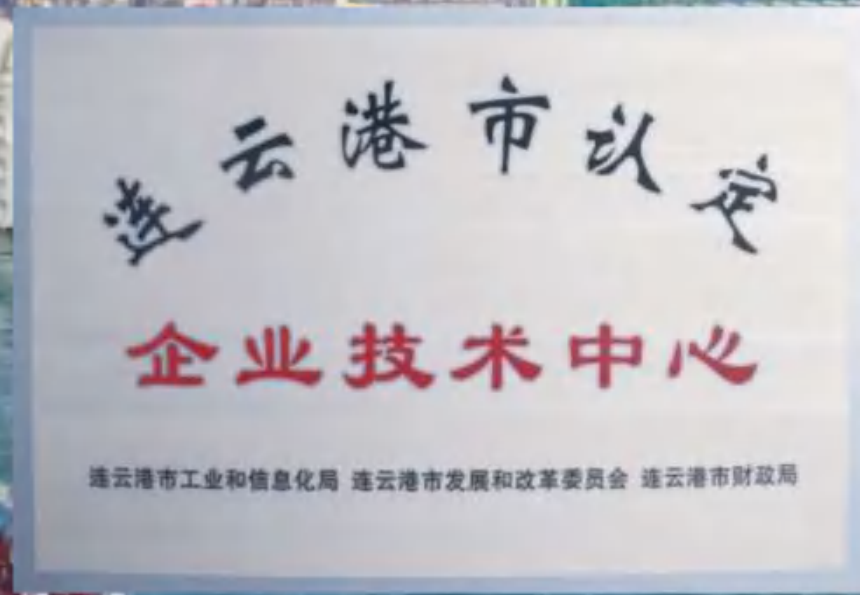
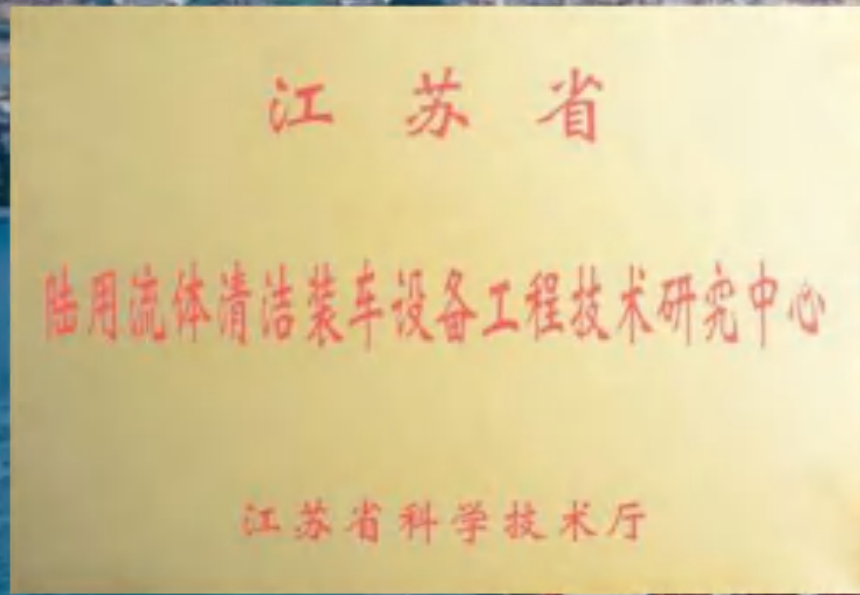
TEAMPOWER

# Company Certification





# Company Certification





# Company Certification



中国石油天然气集团公司  
CHINA NATIONAL PETROLEUM CORPORATION

物资供应商  
准入证

CERTIFICATE OF  
MATERIAL SUPPLIER



中国石化全球供应商管理系统  
Global Suppliers Network of Sinopec Corp

基本信息/Basic information	
供应商名称 Supplier Name	连云港天邦科技发展有限公司 Lianyungang Tianbang science and technology development Co., Ltd
供应商类别 Supplier Category	生产商 Manufacturer
供应商属性 Attribute of supplier	企业自采 Enterprise Purchasing
税号 Tax ID	32072274887205
组织机构代码 Organization Code	7768720-5
工商注册地 Place of registration	江苏省连云港市赣榆经济开发区长江路21号
通讯地址 Address	江苏省连云港市赣榆经济开发区长江路21号
注册国家或地区 Registered Nationality or Region	中国/China, 江苏省/Jiangsu Province, 连云港/Lianyungang
所在城市 City	连云港



中国船级社  
CHINA CLASSIFICATION SOCIETY  
检验证书  
INSPECTION CERTIFICATE



中国机械工业科学技术奖  
证书

为表彰中国机械工业科学技术奖获得者，特颁发此证书。

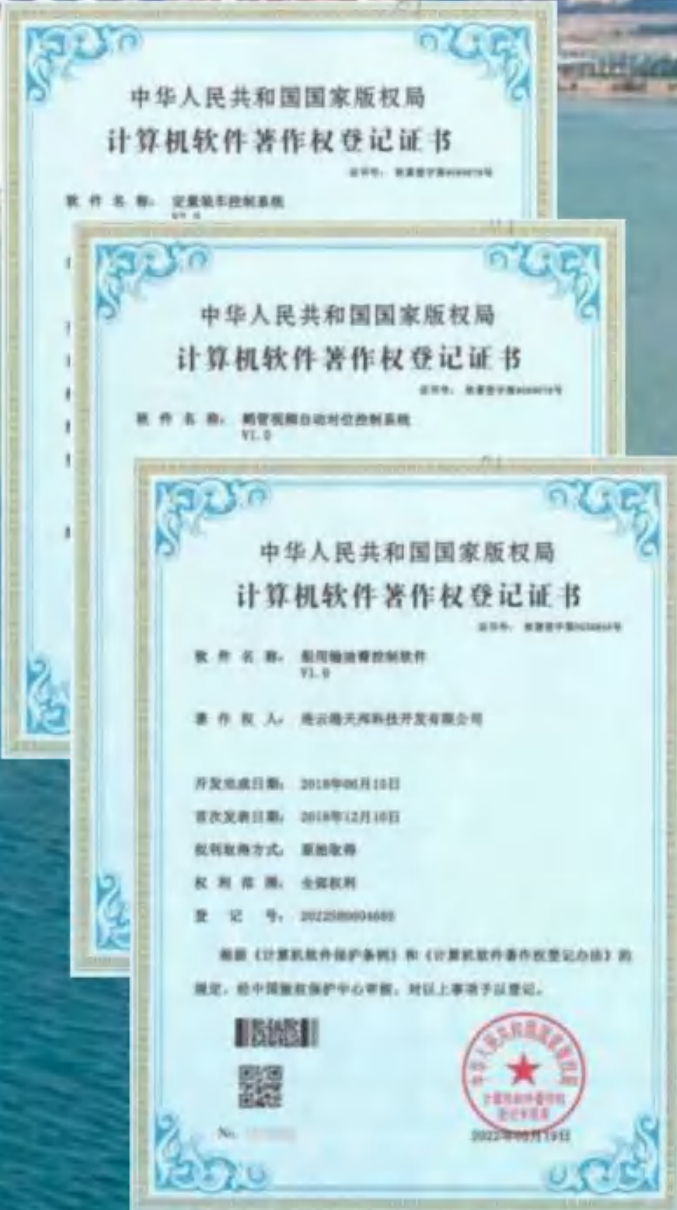
项目名称：智能化油气集输控制与优化关键技术及成套装备

奖励类别：科技进步奖

奖励等级：二等奖

获奖单位：连云港天邦科技发展有限公司

证书编号：02200072-02



中华人民共和国国家版权局  
计算机软件著作权登记证书

软件名称：定制装车控制系统 V1.0

软件名称：智慧装卸自动化控制系统 V1.0

软件名称：船用输油臂控制系统 V1.0

著作权人：连云港天邦科技发展有限公司

开发完成日期：2018年06月10日  
首次发表日期：2018年12月10日

权利取得方式：原始取得

权利种类：全部权利

登记号：2022SR0004440

根据《计算机软件著作权保护条例》和《计算机软件著作权登记办法》的规定，经中国版权保护中心审核，对以上事项予以登记。

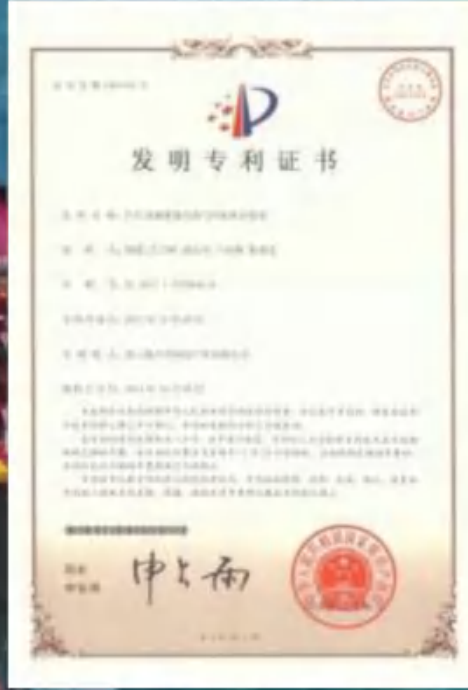
2022年09月19日





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# 80+ Patents Related With Loading Systems





# Fabrication Capability



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# Fabrication Capability



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# Our Main Business

- Truck Loading Arm
- Railcar Loading Arm
- Onspot Railcar Loading Arm
- Marine Loading Arm
- Swivel Joint
- Zero Emission Cover
- Safe Access Platform
- Safety Breakaway
- Loading Skids
- Ground Monitor
- Gantry Automation System





# The Heart of Loading Arm

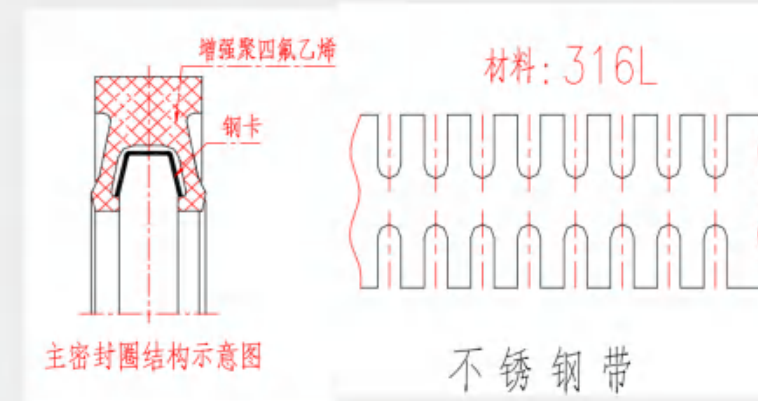
## Swivel joint

Our swivel joint range from CS/SS to Special Material up to PTFE lined with structure of single raceway, double raceway and triple Raceway construction, thus suitable for normal temperature, low temperature, high temperature application even for very corrosive product.



## Main seal ring

The main seal ring is composed of graphite filled PTFE and specially treated SS tension spring. The sealing ring is made of PTFE. The lining spring card increases the elasticity of the sealing ring. When the sealing surface is worn for a long time, the spring card is compensated to a certain extent, thus effectively prolong its life.





# Standard Model of Loading Arm



TA 014/ TA 114 top loading arm



TA 05V/TA 15V top loading arm with vapor recovery



TA 024/ TA 124 top loading arm



TA 024/J type jacket top loading arm



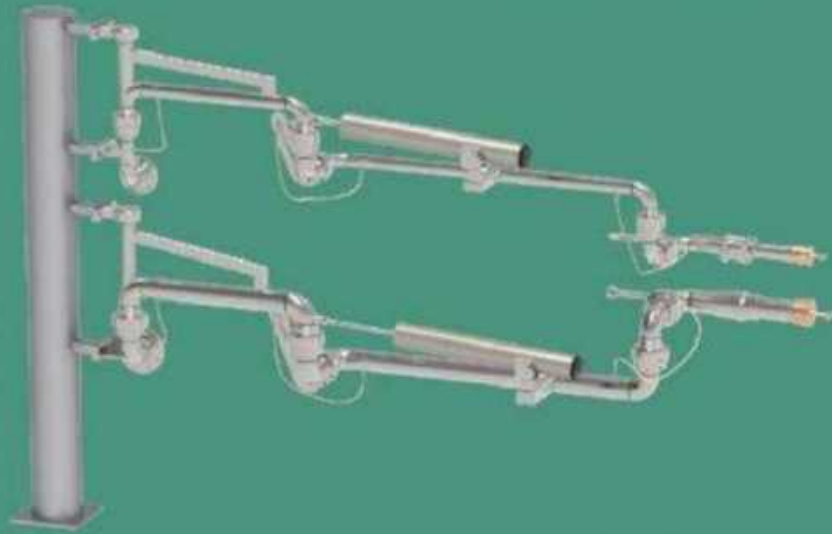
TAC type PTFE lined loading arm



TAX type automatic loading arm



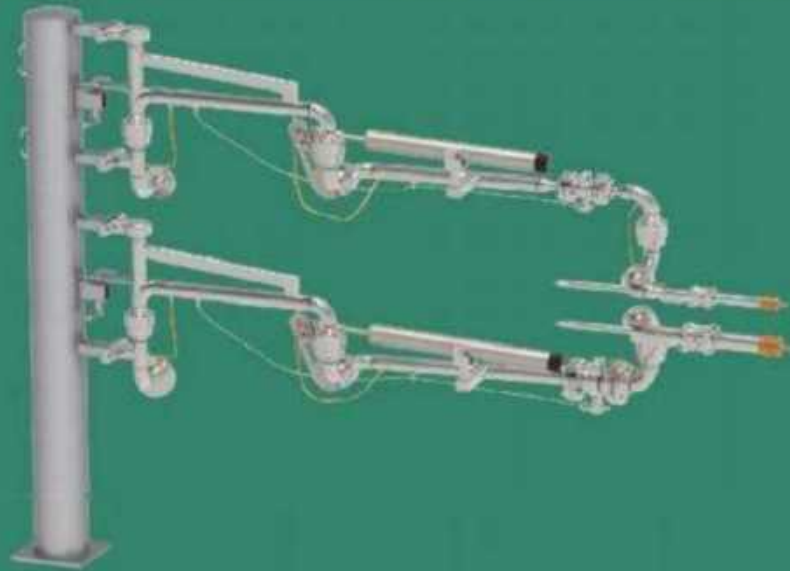
# Standard Model of Loading Arm



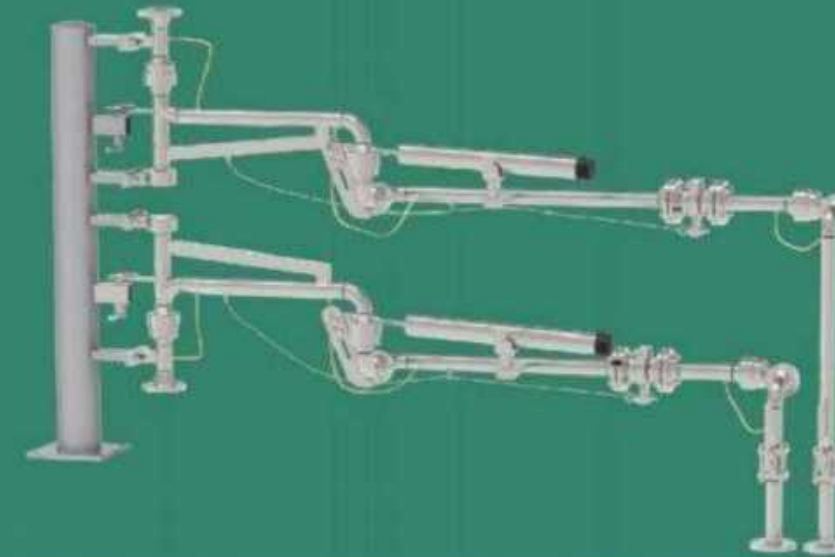
TB 015/025 double pipe bottom loading arm



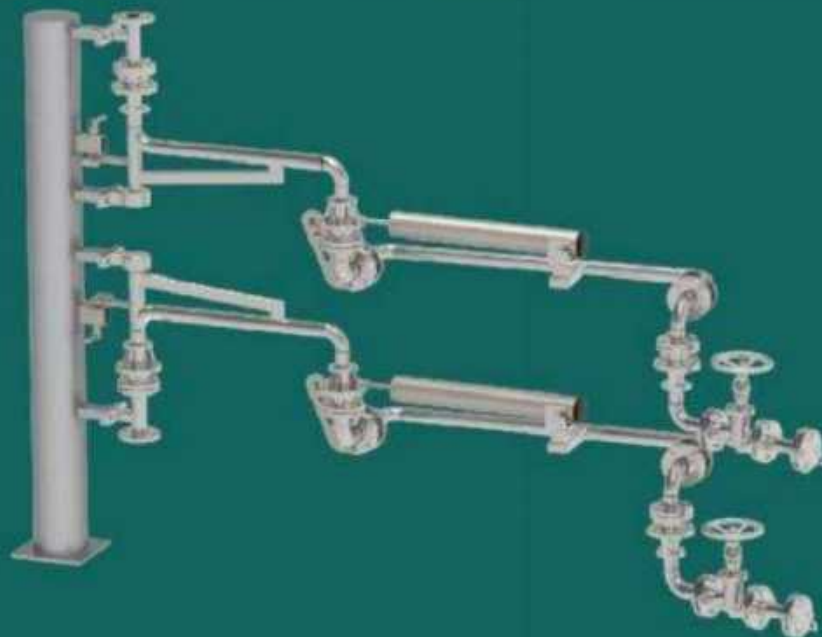
TBD type low temperature bottom loading arm



TB 015/025 bottom loading arm for Liquefied gas hydrocarbon



TB 015/025 double pipe bottom loading arm



TAY type liquid chlorine special loading arm



TB 135 single bottom loading arm





**TBX type API bottom loading arm**



**TH type electrically, hydraulically, pneumatically operated onspot railcar loading system.**



**TA 134/B submersible truck loading and unloading arm**



**TAX type tank, isotank steam washing arm with close loop vapor collection system.**

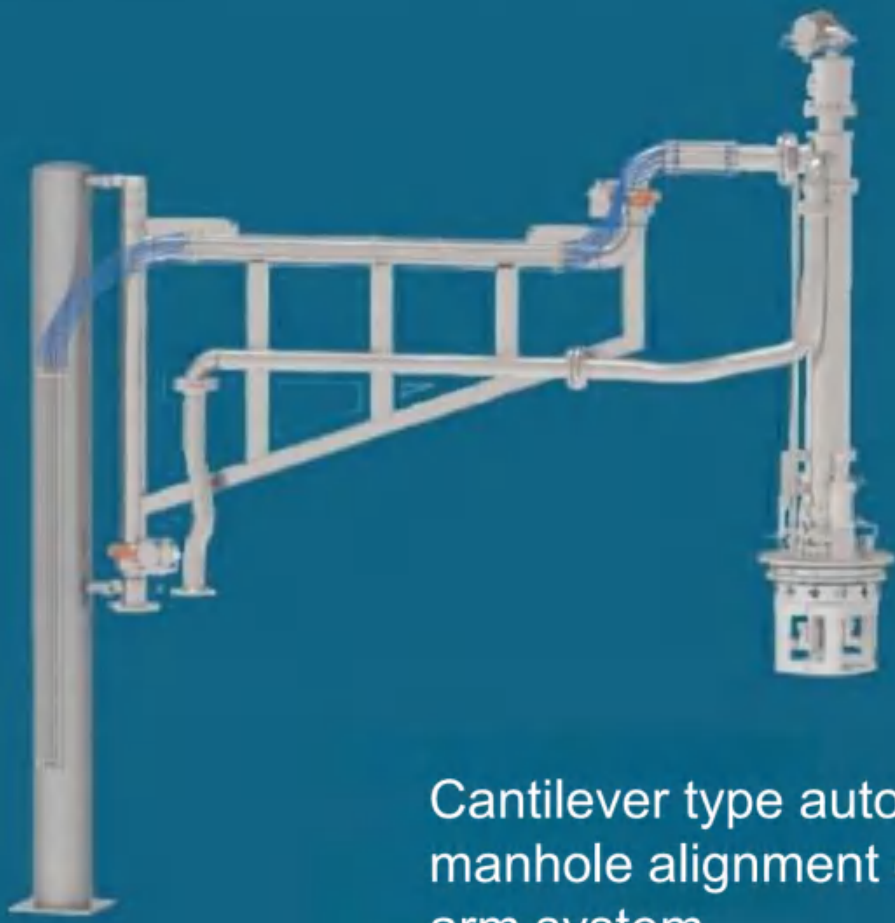


**TA 05/S automatic lock type closed loading system**

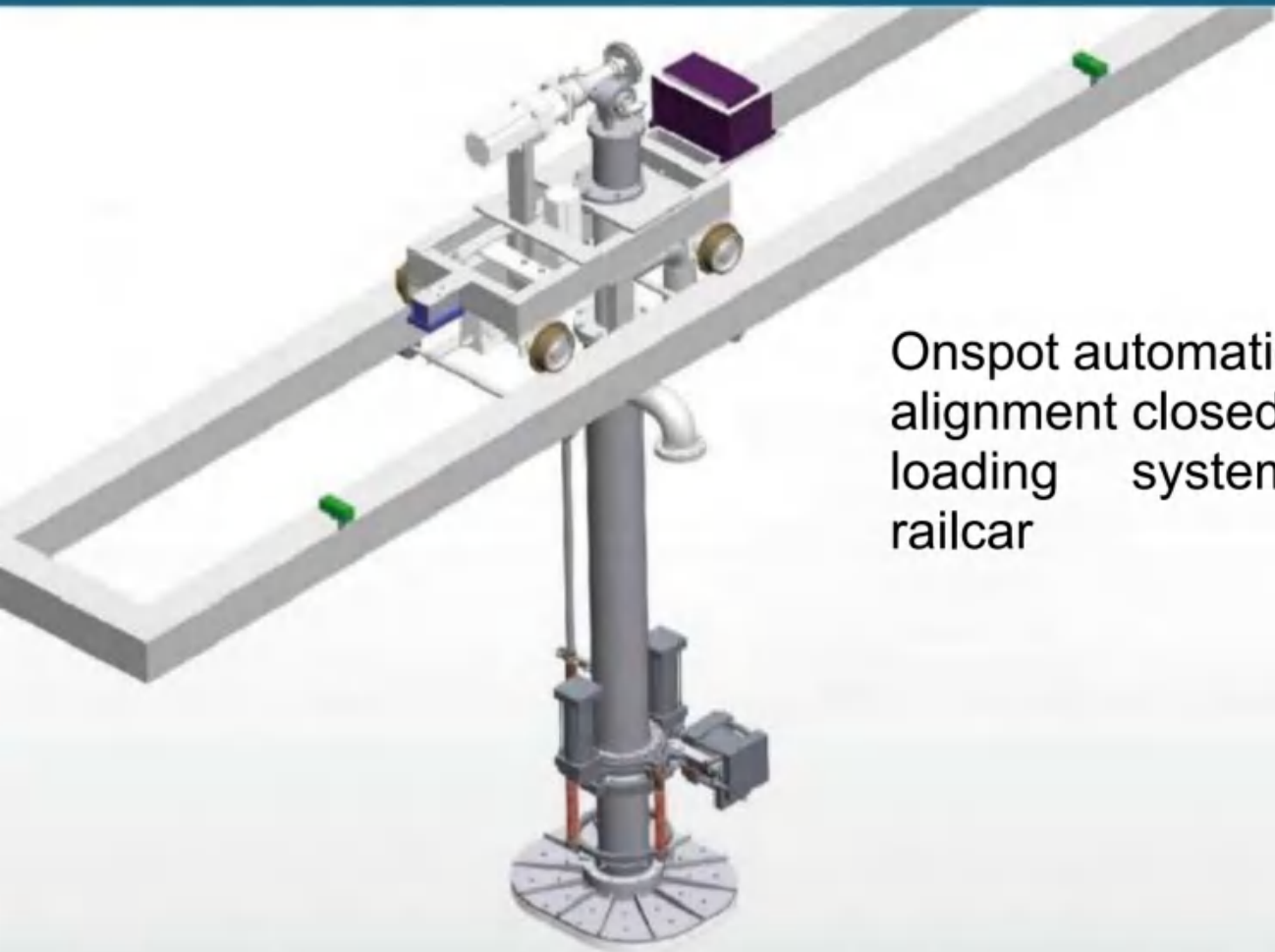


**TA 05/S type automatic locking closed loading system for railcar**

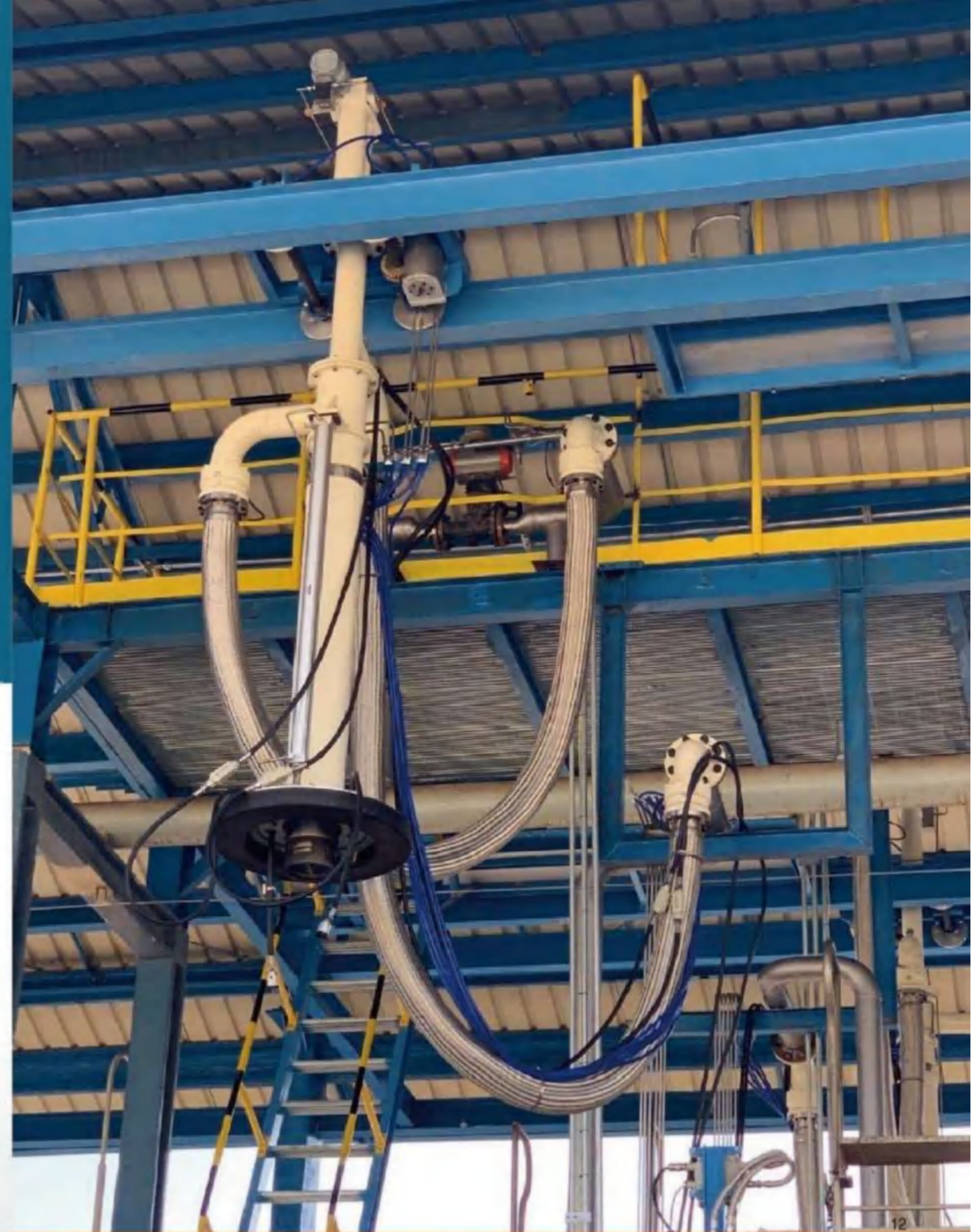




Cantilever type automatic manhole alignment closed loading arm system



Onspot automatic alignment closed loading system for railcar






# Our Patent Pending Technology

## LOCKING & SEALING DEVICE FOR MANHOLE

Lock type seal device

- 
- Features of locking seal device
  - Zero Emission
  - Completely seal with tank manhole
  - Simultaneously move with tank



# The Locking Seal Advantage

The patent pending sealing device is used to seal the manhole of tanktruck or railcar. It can provide a reliable seal during whole loading process. The product is designed for most manhole types on the tank car or railcar. The high elastic rubber pad is made according to different chemical or petroleum handled. The cover can be manual, pneumatic, hydraulic and electric controlled as per customer requirement.

- Safety - far below LEL condition.
- Reduces VOCs emissions to the air
- Energy saving - Increased VOC vapor efficiency
- Operator friendly-the exposure concentration of field operators is far lower than the standard value.



## Comparison with conventional manhole seal method



锥形密封帽



平衡式密封罩



马扎式密封帽



布袋式密封罩



汽车锁紧式密封装置




火车锁紧式密封装置

我们可按照您的要求, 按需定制……



# Test Result on emission at manhole by 3<sup>rd</sup> party lab

# R&D Result Certificate by Sinopec




编号: NZR02 ZN


## 检测报告

检测日期		检测地点	
检测项目		检测标准	
检测人员		检测仪器	
检测环境		检测结论	

石化工程服务有限公司



可本 金



PONY 三井三出三



## 检测报告

委托单位: 三井  
受托单位: 三井  
检测项目: 油气储运车  
报告日期: 8年

中国石化 研究院



片学 三井三出三

【中国石化院士、专家】证书

## 中国石化科学技术成果鉴定证书

成果名称: 上装密闭式装车装置的开闭与应

鉴定日期: 2011年5月

鉴定人: 孙飞

1.5亿元

2011年

技术摘要说明及主要技术性能指标

①、WRKRN

航空工业

本课题是由中国石化石油工程研究院承担的院级研究课题，课题合同号为2012KY-06，针对对现有普通油气回收密闭装车密封性能差，造成在装车过程中，制定了解决方案是设计开发了用于密闭装车的上装的管嘴密封装置。

该密封装置的密封原理是通过锁（夹）紧的方式，利用罐车口整体进行密封。

该技术对现有罐车无需进行改造，解决了密封效果不佳的问题。

实现了高位液面高度检测和降液功能，经过齐鲁分公司各厂和山东石油分公司各油库应用，改造后装车密封性能明显提高。

测试均值为0.05%，低于国内同类密封装车时的密封检测值3%，达到国家标准的要求，满足油气回收的技术要求。

密封装置与同类产品相比，具有密封性能好，操作简单，结实耐用的特点。

业绩指标表明，在所发范围内，本课题行对传统上装式密封装置开发，在行业内属开创性的领先研发，课题创新了一种密封方法，并具有自主知识产权。

根据检测结论，开发的产品 节油减排效果明显，提高了对大气环境的影响，降低了油品对大气环境的影响，降低了安全风险，具有自主知识产权。

## 鉴定意见

提供的技术资料齐全，数据可靠，符合鉴定和档案管理要求。

2. 本项目开发了一体式上装管嘴密封装置，利用罐车口整体进行密封，可实现有效的密封，无需对现有罐车进行改造。
3. 该装置在齐鲁分公司各油库和山东石油分公司各油库应用结果表明，装车时烃类泄漏检测浓度低于0.05%，达到国家标准的要求，满足油气回收的技术要求。
4. 项目成果申请发明专利1项，具有自主知识产权，整体水平处于国内领先。
5. 建议推广应用。

鉴定人: 孙飞

2011年5月15日

## 主井管皮单位意见

同意




## 组站管理单位意见

同意










**Autolok Penumatic  
Cover for tank Truck**



**Manual Cover for  
tank truck**







## Pneumatic Autolok loading system for railcar

- Simple operation
- The sealing device is made of aluminum bronze and aluminum alloy, safe, explosion-proof, reliable and long service life.
- Rubber pad has long service life.
- Almost zero leakage during loading
- The anti-overflow probe included





桁架鹤管锁紧式密封装置



Special cylinder is used to drive the cover

The Onspot Railcar Loading System

The railcar unloading system with pump and close cover plant





# Tanktruck and Railcar steam washing arm with close seal system



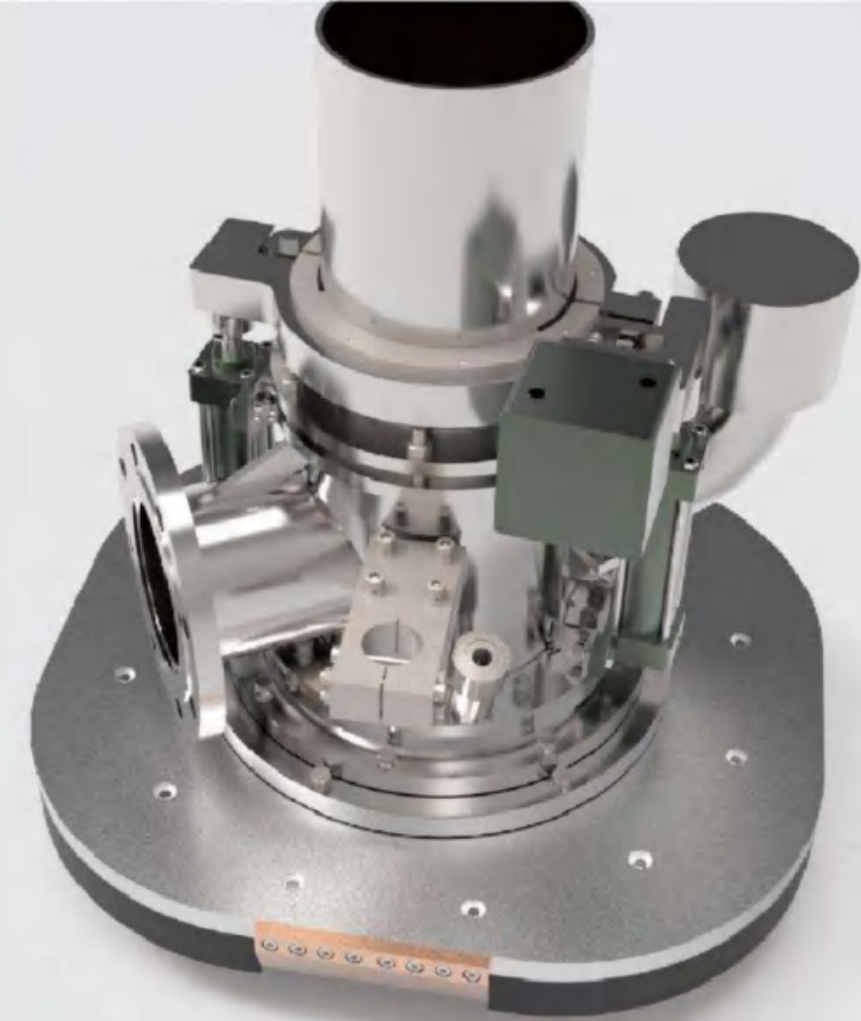
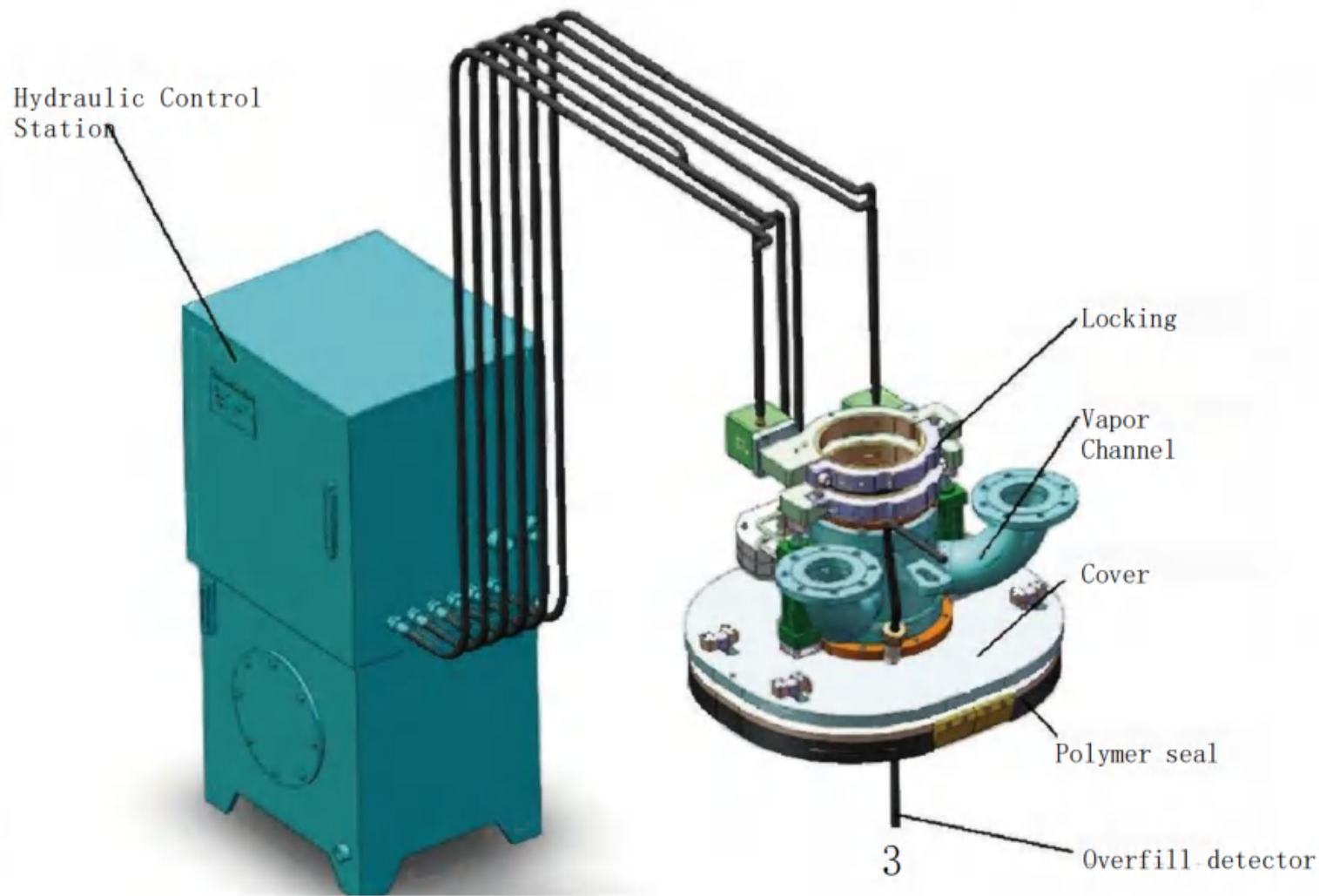
Railcar cleaning

Tank truck steam cleaning





# Onspot Railcar Hydraulic Zero Emission Loading System



## Features

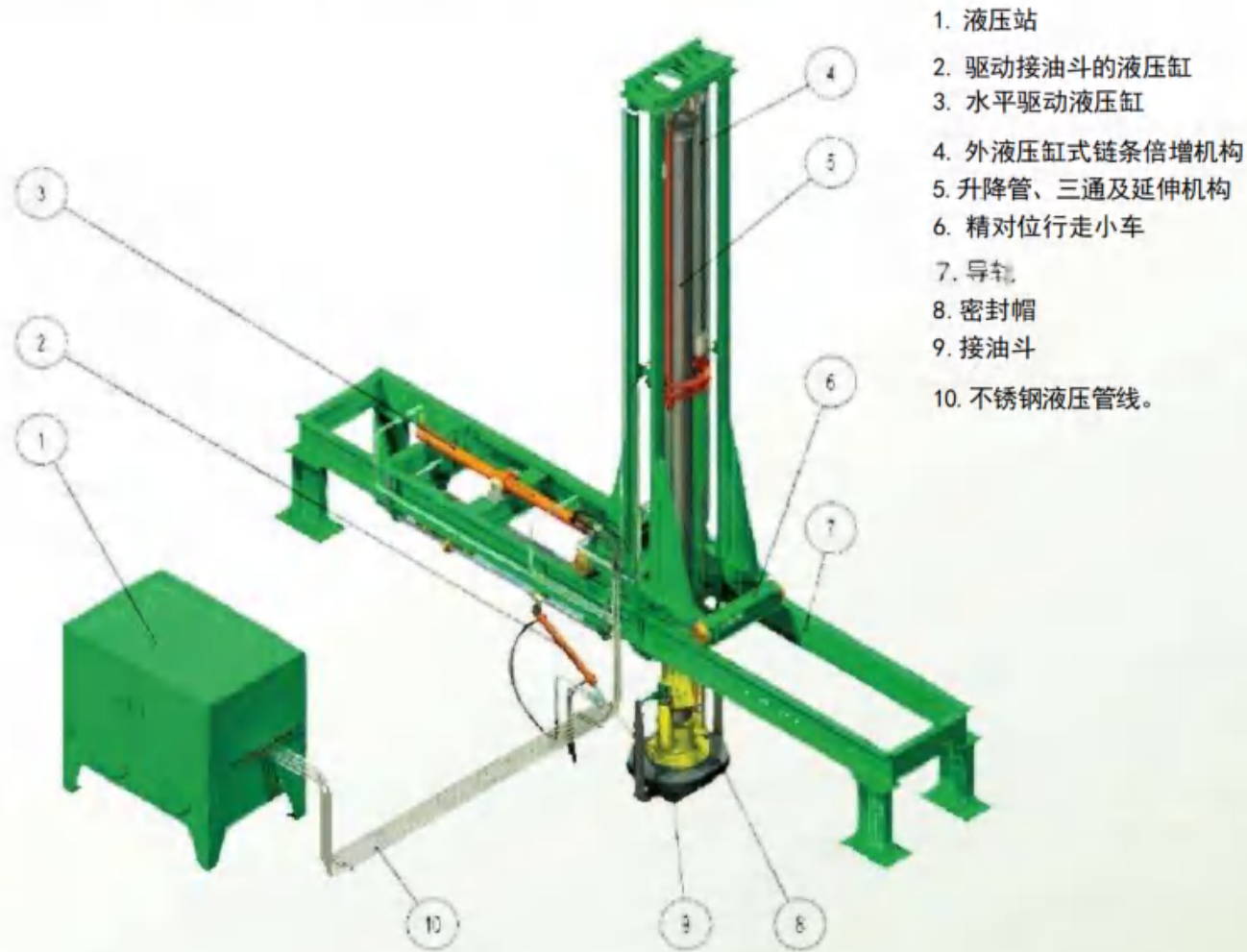
- Onspot autolok sealing cover is hydraulically control and integrated with onspot loading arm leading to easy operation.





# Onspot Railcar Automatic Loading System

TDZ type onspot railcar loading system is composed of external hydraulic loading arm, climbing traction system, quantitative loading instrument and control system



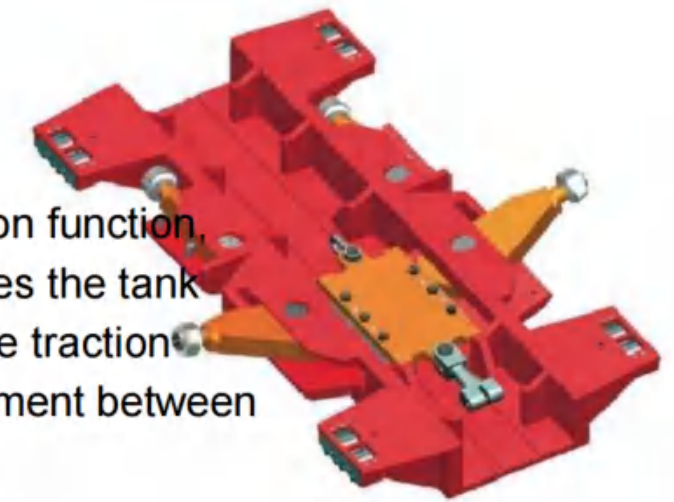
1. 液压站
2. 驱动接油斗的液压缸
3. 水平驱动液压缸
4. 外液压缸式链条倍增机构
5. 升降管、三通及延伸机构
6. 精对位行走小车
7. 导轨
8. 密封帽
9. 接油斗
10. 不锈钢液压管线。

Basic parameters of closed submerged external hydraulic pipe

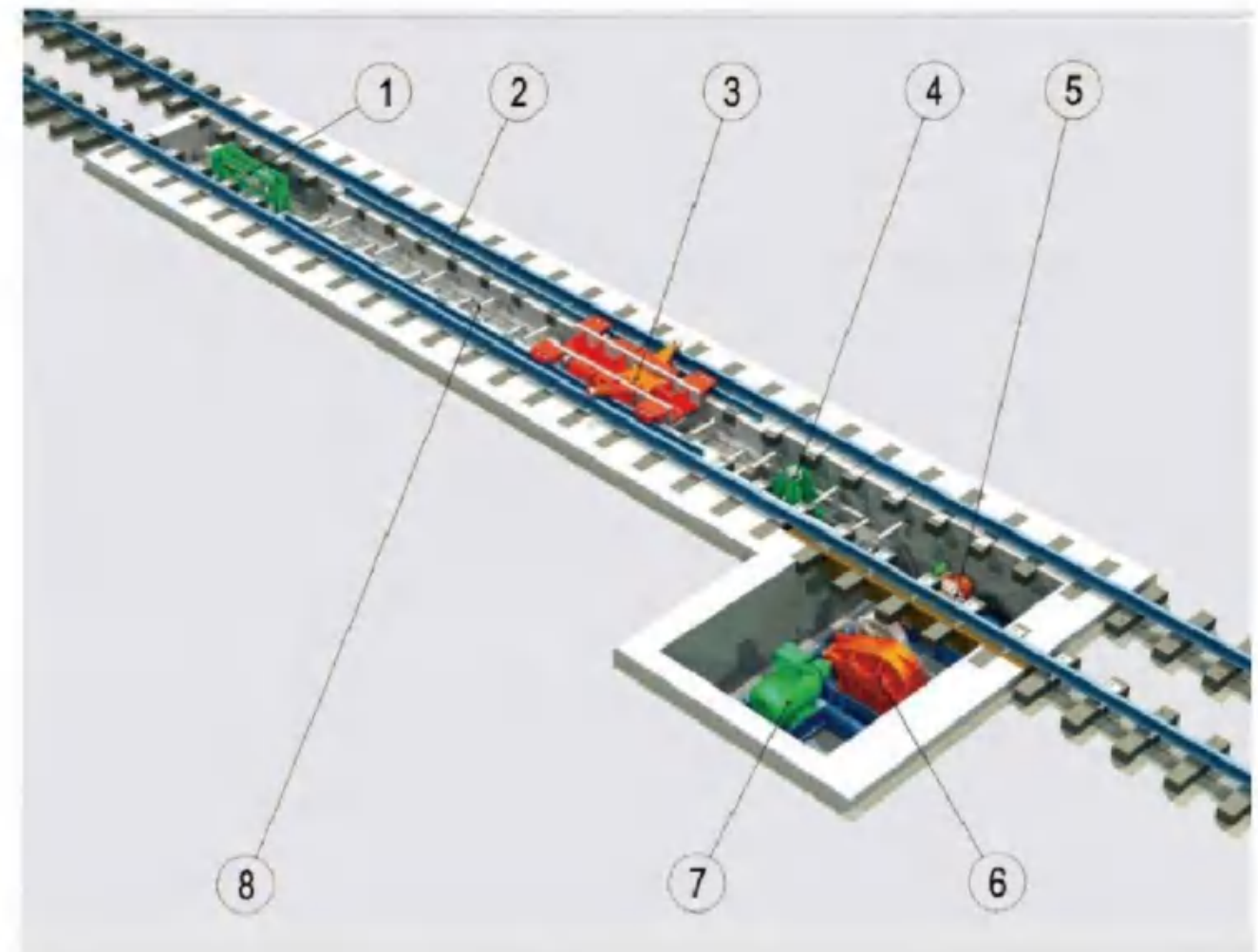
- Nominal diameter: DN200
- Design pressure: 0.6MPa~2.5MPa
- Design temperature: -40°C~+50°C
- Control mode: electro-hydraulic control type
- Suitable for gasoline, diesel, jet fuel, naphtha, crude oil, methanol, water, etc

## Traction climbing mechanism

The tractor has a two-way traction function, and the automatic trolley arm pushes the tank truck forward under the action of the traction chain bar to realize the rough alignment between the tank truck and loading system.



小爬车



1. Tensioning device
2. Climbing track
3. Small climbing car
4. Chain drive support
5. Chain drive device
6. Deceleration device
7. Motor
8. Roller composition



# Loading & Unloading Skid

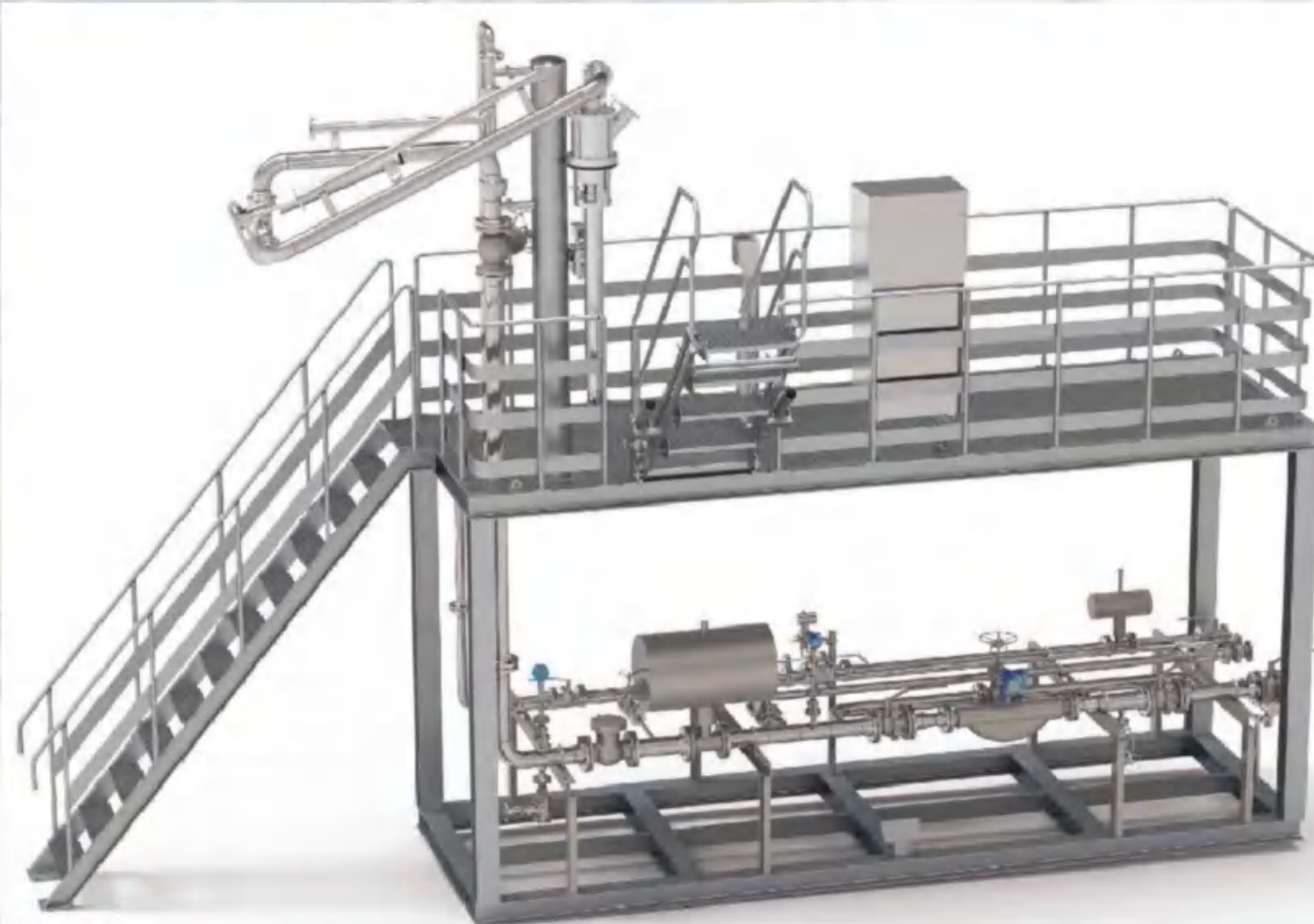


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## Bottom Loading Skid

## Top Loading Skid



### Characteristics:

The skid include bottom loading arm (including parking station), batch controller, flowmeter, control valve etc.

- Closed loading of finished oil and chemical products.
- Applicable to bottom loading tankers that comply with API RP 1004:2003 standards.

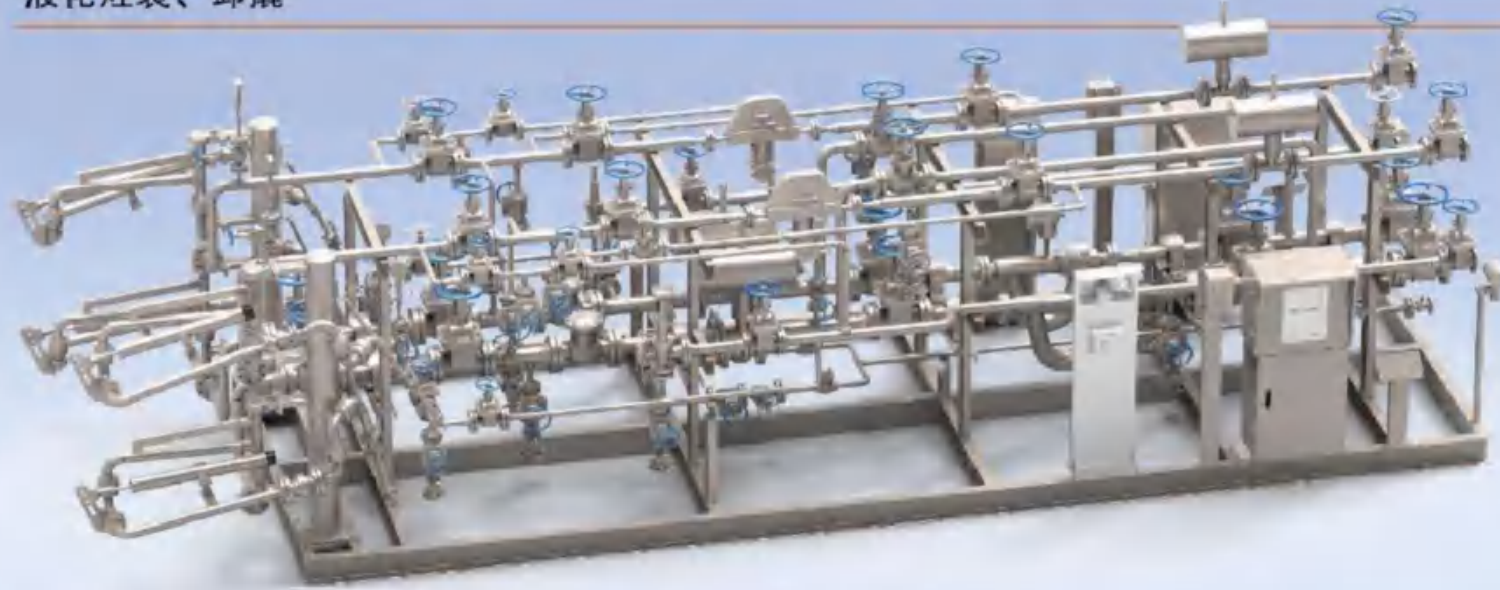




# Loading & Unloading Skid

Liquefied Gas Loading and Unloading Skid

液化烃装、卸撬



Features:

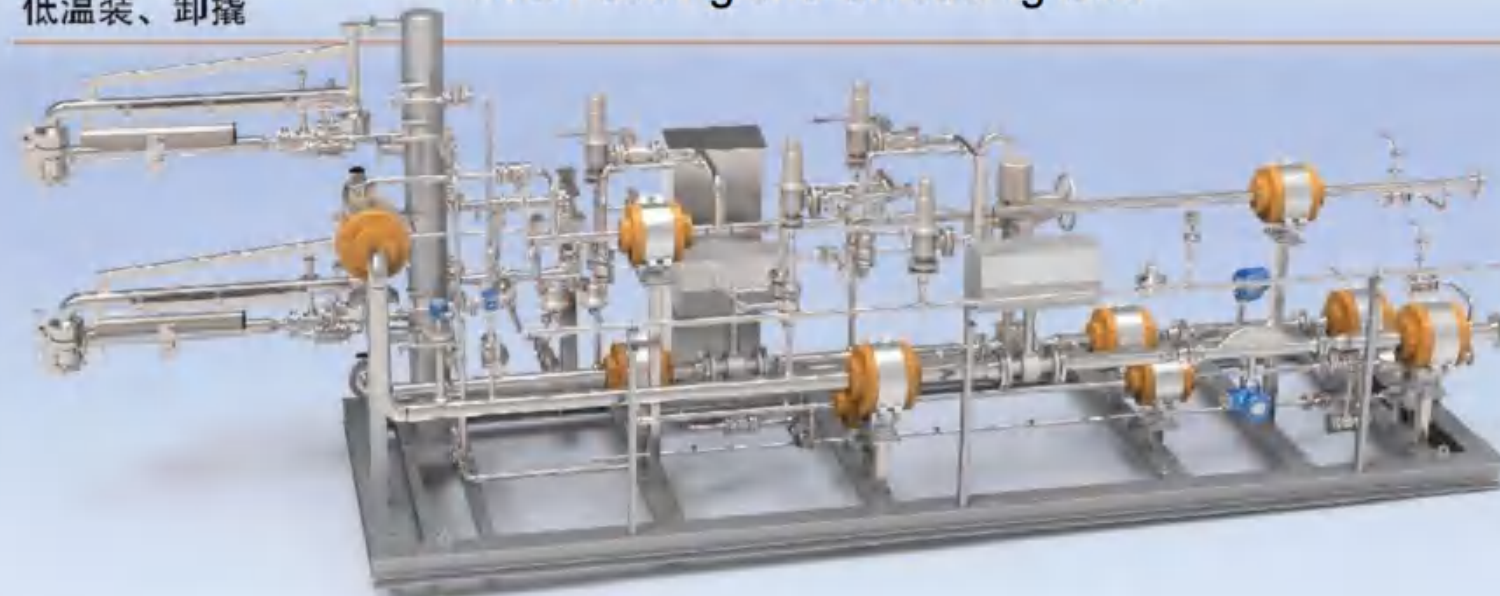
- Applicable media: liquefied petroleum gas, propylene, butadiene, liquid ammonia and other liquefied hydrocarbon media closed loading.
- Applicable tank truck: liquefied hydrocarbon tank truck for bottom loading and unloading
- Design temperature:  $-40-60^{\circ}\text{C}$



液化烃装、卸撬 LPG Loading and Unloading Skid



低温装、卸撬 LNG Loading and Unloading Skid



Features:

- Applicable media: LNG, low temperature ethylene, liquid nitrogen, liquid oxygen and other low temperature media closed loading.
- Suitable for tank truck: low temperature tank truck
- Design temperature:  $-196-60^{\circ}\text{C}$



# Fluid Handling Accessories

## SELF-LOCKED QUICK COUPLER FOR LIQUEFIED GAS HYDROCARBON

- Self-locking function;
- Residual liquid emission reduction.
- **Wide applicability-No Change on tanktruck Kamlok adaptor:**
- Quick joint and valve integration design
- Optimized flow structure close to full diameter;
- The butt parts are made of copper and aluminum alloy, with explosion-proof function;
- Modular design, easy replacement of wearing parts, convenient on-site maintenance.

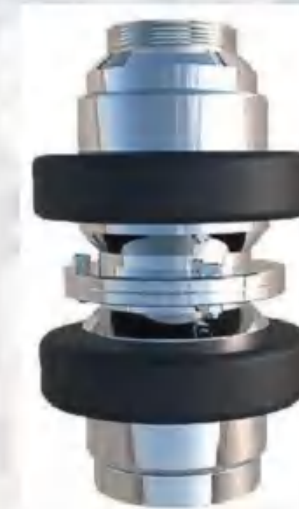


## BREAK-AWAY COUPLER



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致断式拉断阀



夹板式拉断阀



软管专用拉断阀

No	Items	Data
	Diameter	DN25~400 (1" ~16" )
2	Design Pressure	1.6MPa~6.0MPa
3	Design Temp	-196℃~250℃
4	Material	Stainless Steel, Low Temp Steel
5	Application	LPG/ CPP/ Chemical/ Liquefied Ethylene/ LNG
6	Break method	Predefined break pin or cable release



# Safe Access Platform

## STEEL PLATFORM

Customerised safety access platform for tanktruck and railcar



## FOLDING STAIRS

Standard 3,4,5 steps folding stairs.



Patented retractable, rotating ladder

- Left and right rotation locking range  $\pm 30$
- Adjustable pedal range 0~700mm;
- Customized installation

### 技术参数

规格型号	踏步数量	伸展长度 B (mm)	通道宽度 (mm)	最大上仰角度	最大下俯角度
TH-2	2	870	600	90	30
TH-3	3	1275	600	90	30
TH-4	4	1680	600	90	30
TH-5	5	2085	600	90	45



# Project Gallery--Automatic Onspot Loading System



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# Project Gallery- LPG bottom loading arm



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# Project Gallery-LNG loading arm



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# Project Gallery-LNG loading arm



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# Project Gallery-LNG loading arm



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# Project Gallery-LNG loading arm



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# Project Gallery-LNG loading skid



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# Project Gallery-Railcar Locking Cover



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# Project Gallery-Tank Steam Cleaning System



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# Project Gallery-Railcar Onspot loading system



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# Project Gallery-Gantry Batch Loading Controller



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谢 谢 观 看

THANK YOU FOR YOUR ATTENTION!

