



# **PACECO<sup>®</sup> GROUP**

Advancing Solutions in the Port Industry

**Company Introduction 2022**



**Lifting Container & Multipurpose Terminals  
to the Highest Level of Economical and Ecological  
Profitability and Reliability**



Over **60 years** supporting Container Terminals  
in their port operations:  
we create strategic value, increasing profitability  
through solid and reliable cranes, services &  
**Advanced Port Technologies**



## PACECO GROUP

We make efficient, profitable and reliable port operations happen: technical support, service and high quality standards by a remarkable leading crane manufacturing pioneer group

**+60**

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Years designing  
& manufacturing  
Container Cranes

**+2500**

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Built Cranes

**+200**

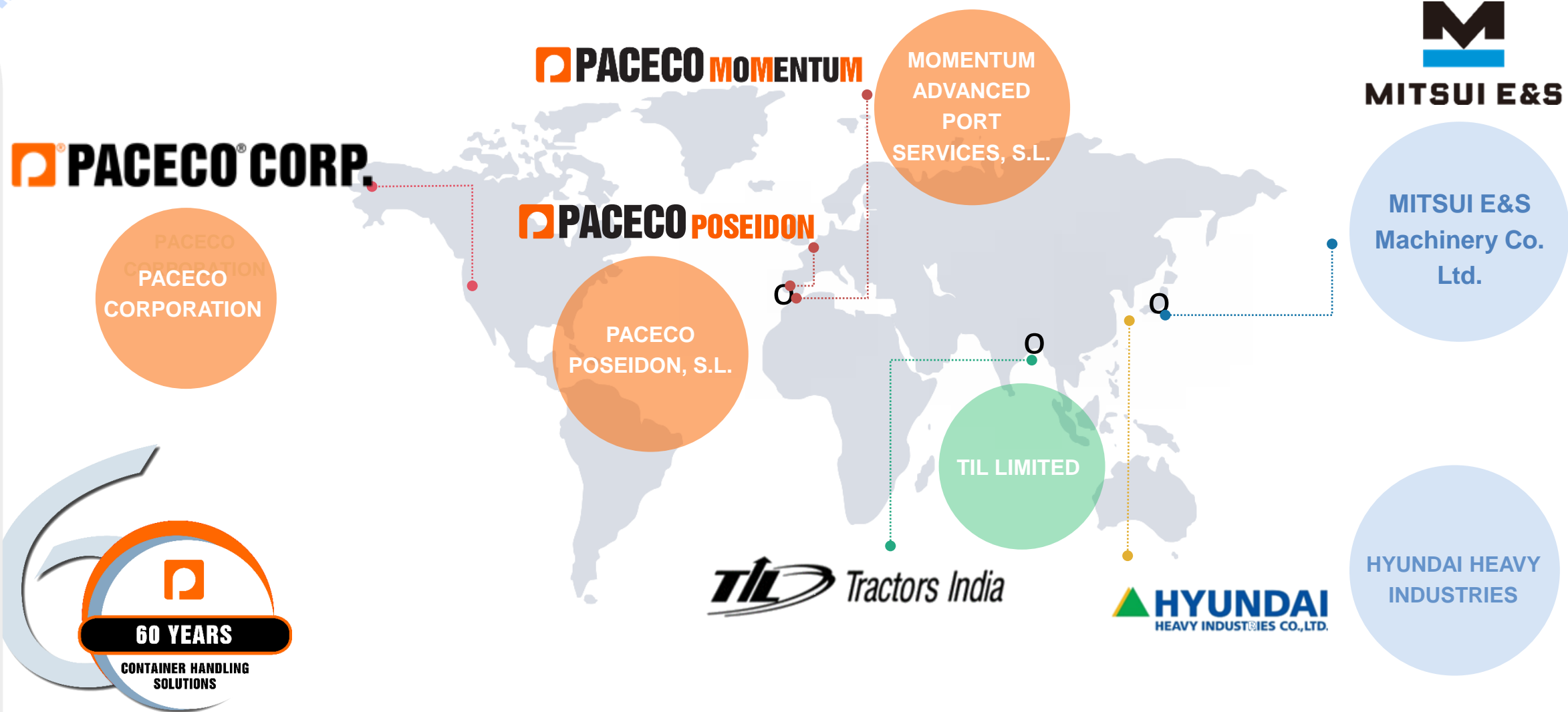
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Operating Ports

## PACECO GROUP

### Global Deliveries

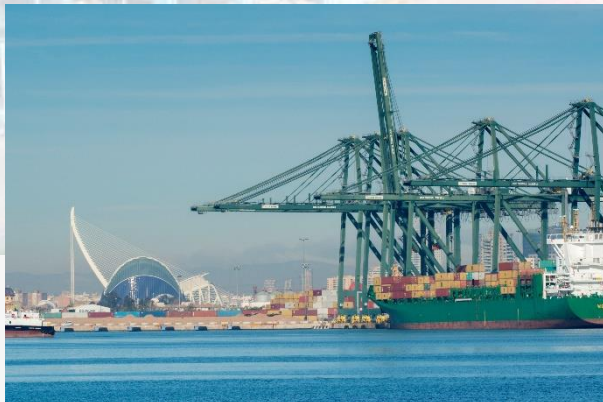




# A smoothly 360° operating container terminal

## Crane Design & Manufacturing **cranes**

60 years vast experience in the container handling industry enhancing efficient, profitable and reliable port operations



## Advanced Port Technologies **technology**

Terminal Automation & Digitalisation for smart ports, profitable and sustainable businesses



## Training on Assets & Advanced Port Technologies **technology**

Our technical & operational machinery and terminal operations know-how at your service for hands-on training





# A smoothly 360° operating container terminal

## **Maintenance Repairs & Inspections**

### **services**

Our highly qualified customer care service looks after every aspect of your terminal to provide smooth operations

## **Crane Components Replacement**

### **services**

Manufacturing of Spare Components according to OEM drawings and delivery of commercial Spare Parts

## **Crane Accessories**

### **services**

Accessories & Lifting Devices for STS Portainer & RTG/RMG Transtainer Cranes

## **Safety, Security & Certifications**

### **services**

Safe and secure work on your cranes and certifications about the best asset conditions

## **Terminal Assessment & Consulting**

### **services**

We assess you in Brownfield & Greenfield projects as well as in several other processes





# A smoothly 360° operating container terminal

## Refurbishment & Upgrading Large scale services

Crane modernization/modification and refurbishment to keep your crane up to date and enhance its profitability



## Crane Relocation Large scale services

Fully erected crane transport and large parts transportation on trucks and/or ships



## Crane Erection Large scale services

From crane components vessel load/unload, through erection area disposition and assembly, up to crane jack-up.



**60 years expertise endorsing the most trustful, solid quay  
& yard cranes in the market worldwide**

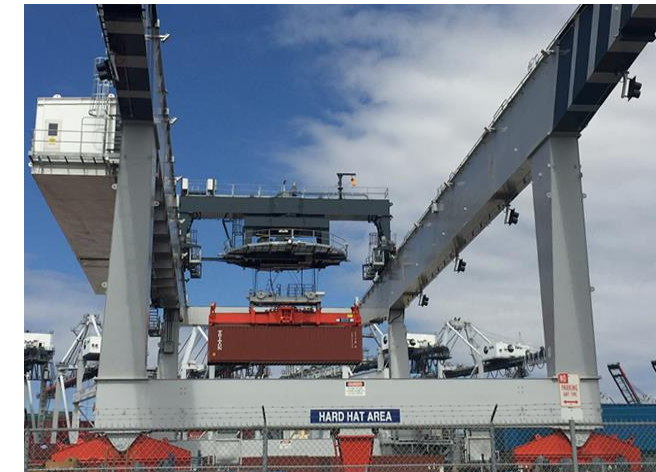
STS Portainer®



RTG Transtainer®



RMG Transtainer®





# Walk with us the path towards future Zero Emissions

Our response to the ecological transition and decarbonization of the port industry

## Two step Approach to Zero Emission



**Near Zero Emission  
RTG Transtainer®**

**Step 1: Near Zero Emission RTG TRANSTAINER®**  
with larger battery and smaller Tier 4f D-G set used in operation  
(available today).



# Walk with us the path towards future Zero Emissions

Our response to the ecological transition and decarbonization of the port industry

## Two step Approach to Zero Emission

**H<sub>2</sub>-ZE**  
**TRANSTAINER**

**Step 2: Hydrogen Technologies.** Convert to Fuel Cell (FC) power pack when FC and H<sub>2</sub> supply infrastructure is ready. Upgrade requires replacement of diesel genset to H<sub>2</sub> fuel cell power pack and H<sub>2</sub> tanks.



# Walk with us the path towards future Zero Emissions

Our response to the ecological transition and decarbonization of the port industry



## Step 1:



**Near Zero Emission  
RTG Transtainer®**

Over 270 PACECO-Mitsui Hybrid Transtainer® RTGs are in use today at ports around the world. But we have gone a step further in our ongoing commitment to sustainability and launched the **NZE Transtainer® RTG**, a Near Zero emission crane with a small Diesel Engine that will be easily able to be replaced by a **zero emission Hydrogen Fuel Cell Power Module** power source in a near future



# Walk with us the path towards future Zero Emissions

Our response to the ecological transition and decarbonization of the port industry



**Near Zero Emission**

## Step 1:



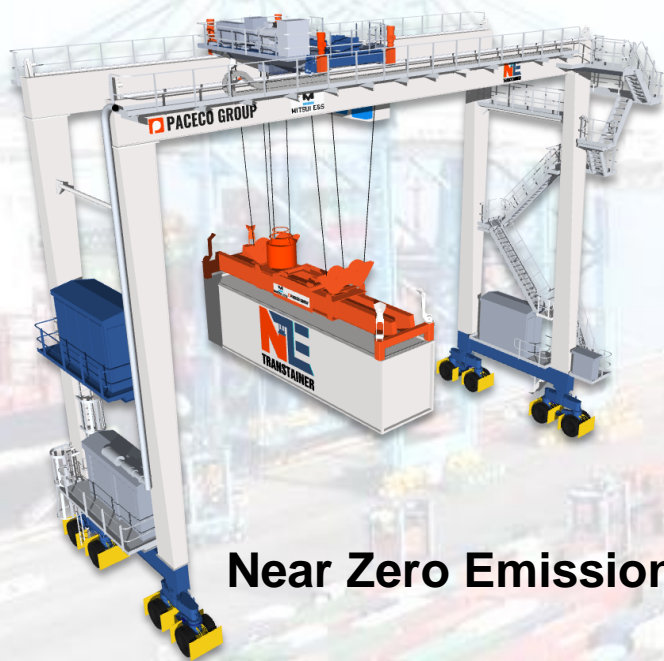
### **Near Zero Emission RTG Transtainer®**

- Larger capacity lithium-ion battery bank and reduced engine genset
- Start/stop feature to primarily operate to recharge the battery bank
- CO<sub>2</sub>, NO<sub>x</sub> and PM particle emissions are reduced up to 60%-70% and fuel consumption up to 70%.
- Further improvements in maintenance costs and noise decrease: an even more efficient and sustainable RTG concept
- .Same crane speed performance as Hybrid RTG
- Remarkable high RTG Crane Autonomy: No need for cable reel or bus bar and no civil works required.



# Walk with us the path towards future Zero Emissions

Our response to the ecological transition and decarbonization of the port industry



**Near Zero Emission**

## Step 1:



**Near Zero Emission  
RTG Transtainer®**

A forerunner for **zero emission technologies** such as **hydrogen fuel cell power modules** for ZE Transtainers. NZE technologies will allow our customers to invest now with low emission Transtainers and easily enable the **low-cost conversion of NZE (Near Zero Emission) Transtainer to a ZE (Zero Emission) Transtainer** by simply replacing the diesel generator with a **hydrogen fuel cell power module** without modification of other drive systems or mechanical parts.

# Walk with us the path towards future Zero Emissions

## HYDROGEN TECHNOLOGIES

### Step 2:

**H<sub>2</sub>-ZE**  
**TRANSTAINER**

**Zero Emission RTG Transtainer®**

The most sustainable and autonomous RTG Transtainer® crane is planned to complete **in-house testing by March 2023**.

The propulsion of the **H<sub>2</sub>-ZE (Zero emission) RTG Transtainer** crane will occur by a high performance **Hydrogen Fuel Cell Power Pack** thanks to which Cero CO<sub>2</sub>, NO<sub>x</sub> and PM particle emission will be reached and fuel consumption utterly eliminated.

Maintenance costs will again be reduced.

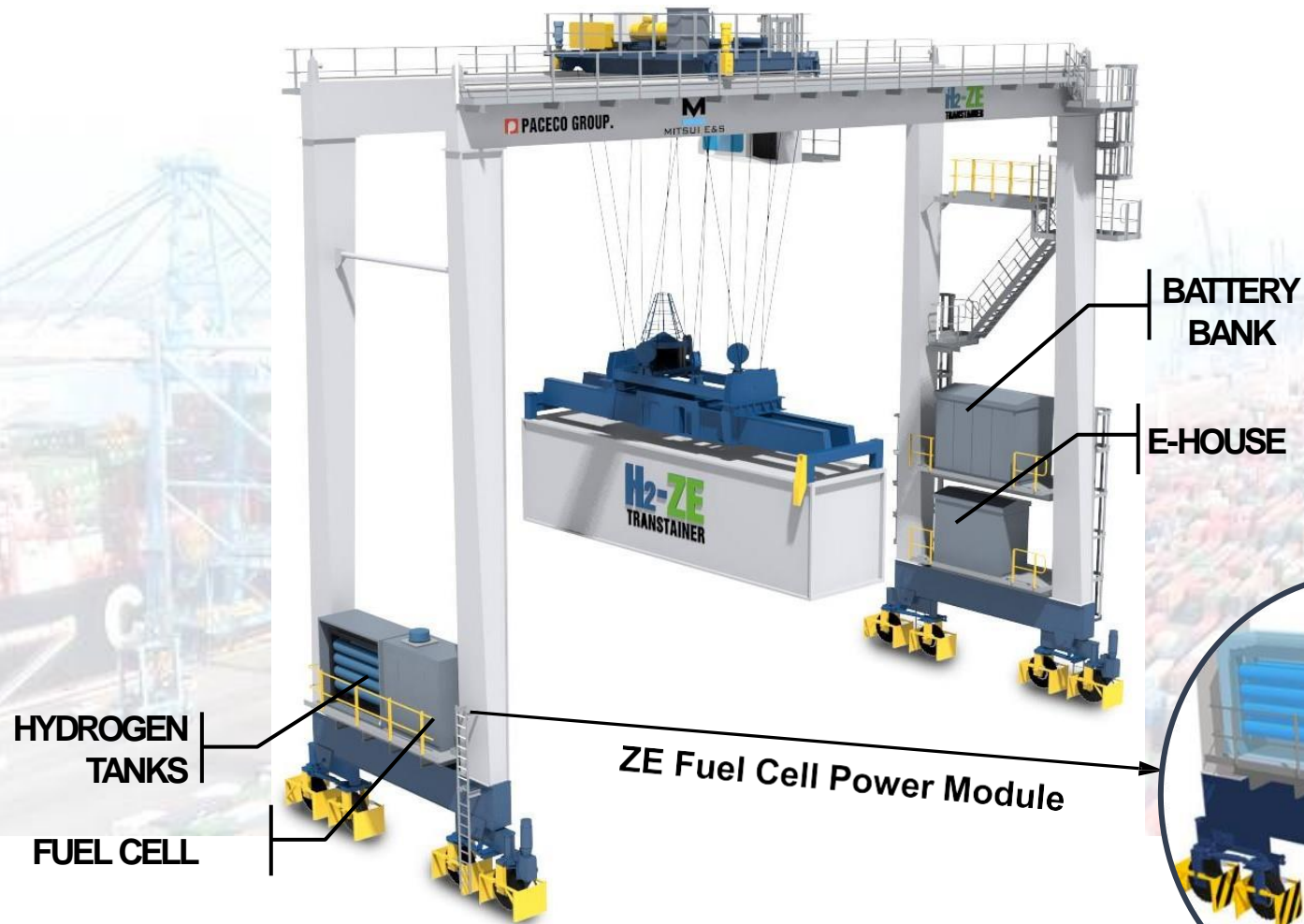
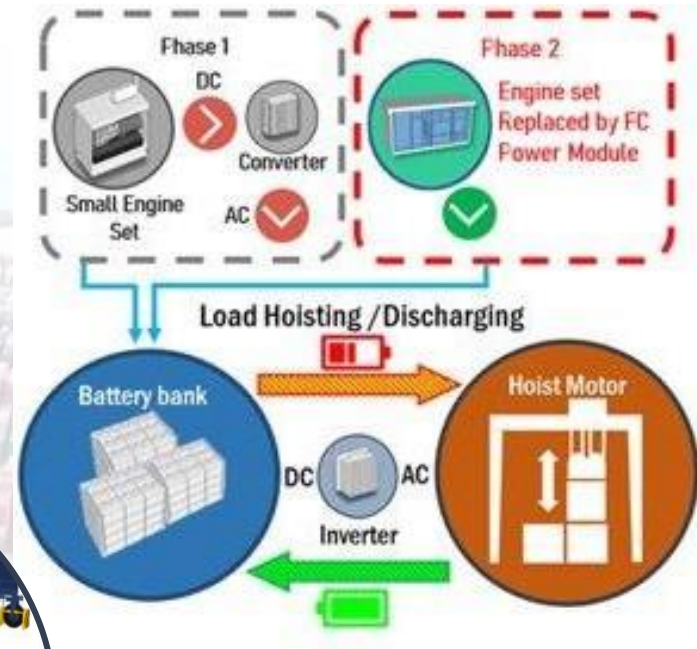
A Low-cost conversion path will be guaranteed thanks to an easy Diesel Genset swap by a Fuel Cell, with no need for other parts or electric system replacement. High RTG Crane Autonomy: No need for cable reel or bus bar and no civil works required.





Legacy diesel RTG upgrade to ZE

Easy 2 step process



# **H<sub>2</sub>-ZE** **TRANSTAINER**



# The Operating System of your Multipurpose Terminal

Automate your cargo supply chain and make profitable decisions while reaching the maximum of movement efficiency and productivity



paceco  
**poseidon**

# The Operating System of your Multipurpose Terminal

Every container, every movement and every detail in real time on your screen

## **Centralized control from a unique monitoring centre**

Plan and optimize your terminal's operations from a unique monitoring centre

## **Tailor-made solutions, easy to use and to learn**

We analyze your needs and offer highly customized solutions supported by web-based, highly user-friendly software

## **Detailed information about terminal workflow and smooth operations**

Automated processes for profitable decision-making and planning to prevent unforeseen events in the cargo supply chain

## **Multiterminal platform**

Implementation of one unique solution in multiple terminals to create operational and supply chain synergies

## **Raise in productivity**

Cargo Supply Chain Automation drives efficiency and productivity of movements to its peak

## **Aimed at multipurpose terminals**

All in one solution for container port, general cargo, bulk, vehicle and intermodal rail terminals

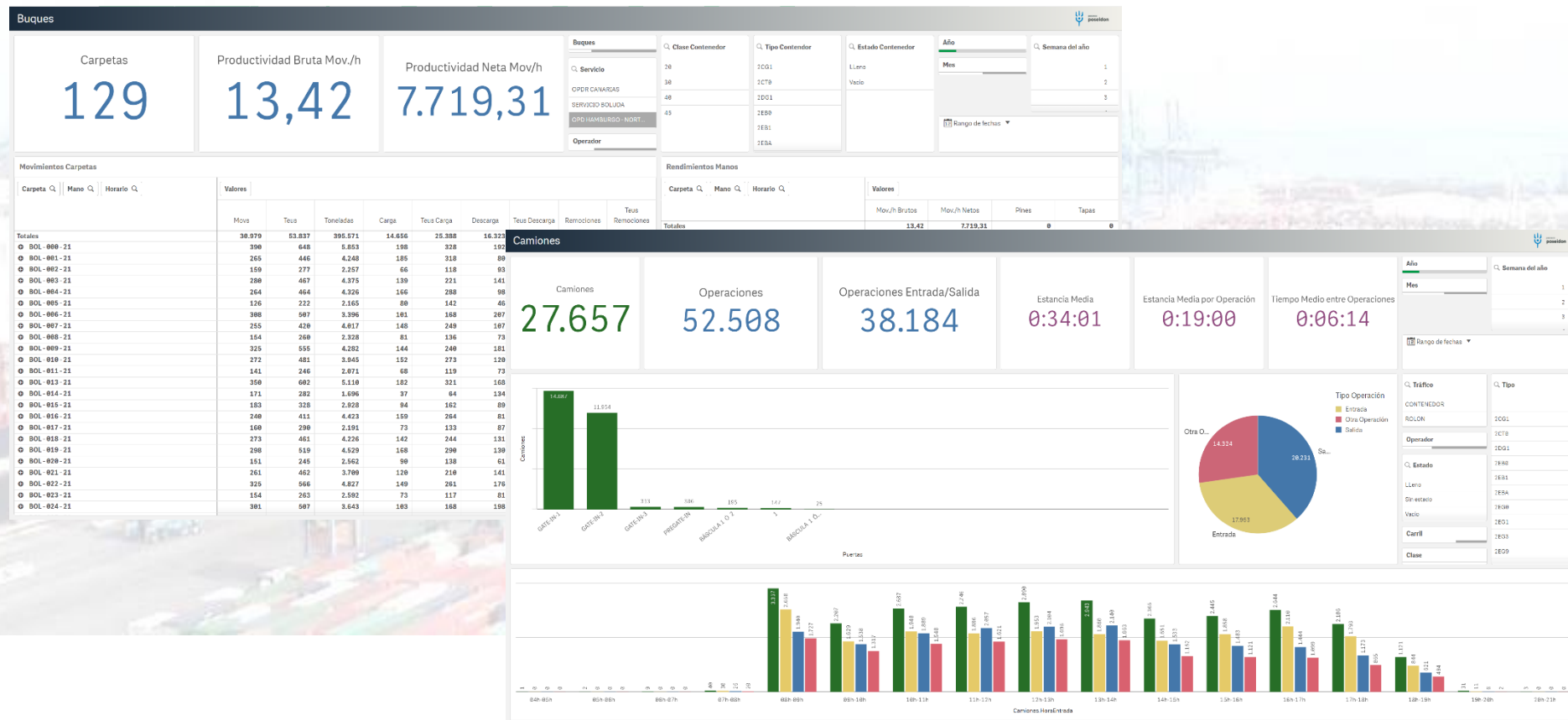
## **And much more...**

Gate management, yard management, container positioning optimization, machine management & optimization, vessel management, railroad management, etc.



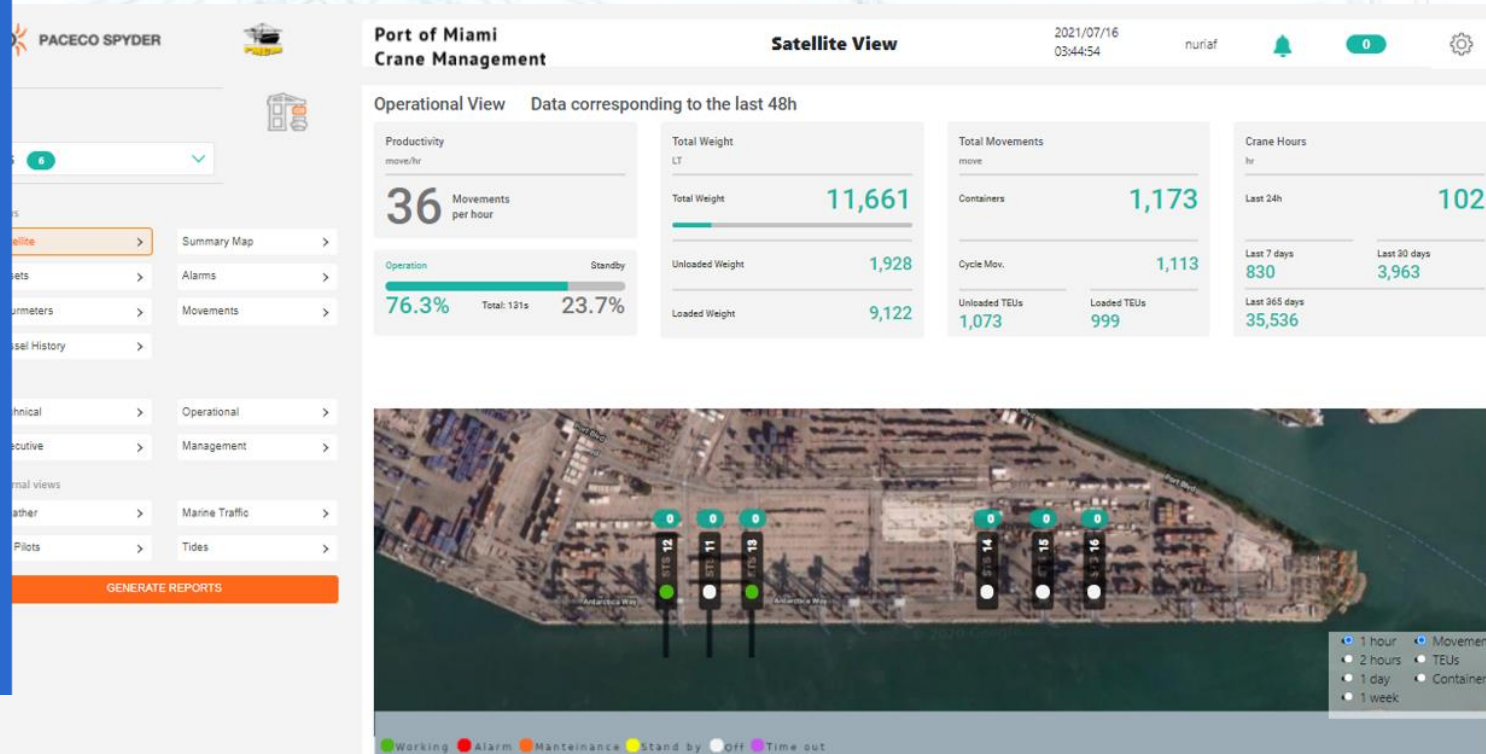
**paceco  
poseidon**

# TOS & KPIs Module: Reach your business goals by evaluating your success





### Terminal Digitalisation through smart connection



Turn your terminal into a smart business and push its performance through terminal asset **digitalisation**: know your assets and cranes in full depth and get absolute control over them. Big Data & IIOT for smooth and profitable terminal operations while improving your decision making based on real-time data.

**An environmentally sustainable port:** increase environmental efficiency managing your resources and taking control over your carbon footprint thanks to IIOT technology. Benefit from Big Data and predictive analysis to schedule vessels arrival and departure.

Make data-backed sustainable decisions by controlling the electrical consumption of your assets

# Terminal Digitalisation through smart connection



paceco  
**spyder**

## **Real-time information about complete asset status**

Mechanisms, alarms, statistics, maintenance alarms, hourmeters, monitoring modules, machinery house module

## **Real-time crane working view**

Real-time view while producing huge data amounts: container movement, brake status, electrical consumption, movement cycles, weight per pin, hourmeters second by second

## **Real-time information about technical status**

Synoptic terminal map showing all terminal assets & current technical Status (technical KPIs, alarms, wind alert, container moves in the last hour)

## **Historic monitoring graphic analysis and KPIs of each container movement**

Container graphic traceability. Historic monitoring, second by second, of each single container movement, trolley position, container pin weight and time & operation peaks

## **Automated customized operational and technical reports**

Choose between the wide range of KPIs you want to be shown within your daily, weekly, monthly & yearly reports

## **Real-time information about weather forecast, Marine traffic, Port calls**

Operational planning. Direct link to wind & weather data that might affect the terminal operations, marine traffic, live ships map and port calls synchronized vessel scheduling

## **Real-time information about Operational status**

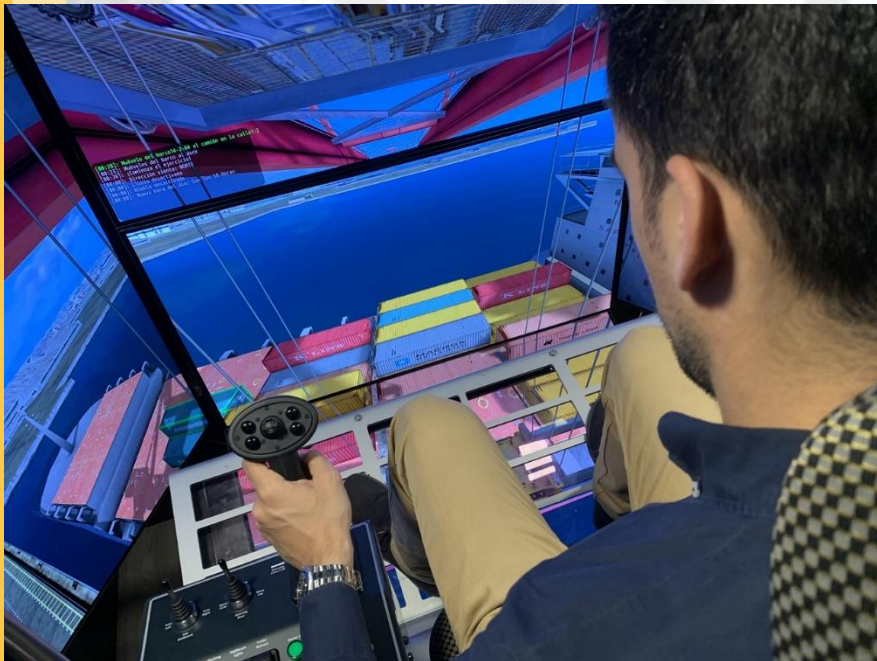
Satellite terminal map showing all terminal assets and current operational status (operational KPIs, operational and/or maintenance alarms, wind alert, container moves during last hour)

## **Cryptoeconomy (Blockchain)**

Through the processes and huge amounts of valuable data we obtain, we carry out cryptoeconomic studies to analyse processes and cycles down to the smallest detail

# Going far beyond profitability, efficiency and safety in your terminal by the right Training

The best technical, operational and economic performance of your terminal by enabling operators and employees to train in a safe, immersive port environment thanks to virtual reality technologies





# Going far beyond profitability, efficiency and safety in your terminal by the right Training

Training on Terminal Assets, Technologies & Operations for an optimum terminal performance

## **Virtual Reality based Training on Terminal Assets**

Simulator for Port Equipment:  
STS, RTG/RMG, Reach  
Stacker, Terminal Tractor and  
Mobile Harbour Crane

## **Virtual Reality based Training on Paceco Poseidon (TOS)**

Training on Terminal Operating  
System (TOS)

## **Virtual Reality based Training on PACECO SPYDER**

Training on Industrial Internet  
of Things (IIOT) software tool

## **Certifications**

Crane operator's certification  
based on evaluation system &  
reports on trainees performance

Let us train your personnel so that our machinery and  
Advanced Port Technology tools perform at their  
best in your terminal



**paceco**  
**seamulator**

# Going far beyond profitability, efficiency and safety in your terminal by the right Training

Benefits from a virtual technology based training thanks to our Port Equipment  
& Advanced Technologies Training Simulator

## **Increase training efficiency & profitability**

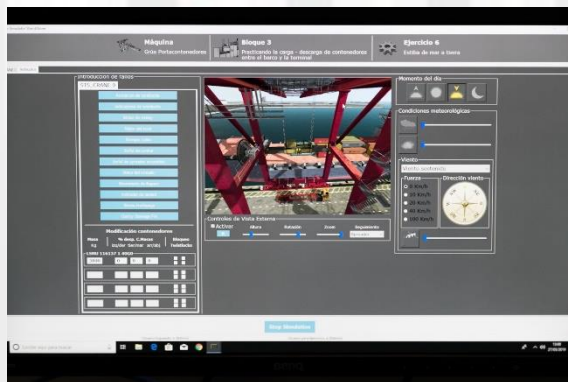
Self-confident, optimally  
trained employees for high  
handling cargo volumes

## **Decrease in training costs**

live machinery training is cost  
productive in terms of time,  
crane components and steel  
structure wear & tear, fuel  
consumption & productivity

## **Improved KPI performance**

high competency level  
acquisition to be  
implemented in live-  
operations making them far  
more profitable



## **Smoothness in cargo supply chain**

the high demanding port  
operations environment requires  
accurate workflows that guarantee  
constant turnover of vessels



**paceco  
seamulator**

## Training on Assets & Operations

Our technical and operational machinery and terminal operations know-how to train on Assets, Maintenance, Operators, Digitalisation & Spare parts policies and process Management for best terminal performance

### **Maintenance Management Training**

Terminal Maintenance policies and procedures establishment

### **Operator Training**

Two phases training: theoretical on assets, process behaviour and risks in port environments and hands-on (virtual reality Port Equipment Training Simulator)

### **Spare Parts Management Training**

Spare parts requirements assessment: stock and critical stock definition: updated inventory

### **Asset Management Training**

Complete machine park Management: investment, repair, upgrade, refurbishment planning. Maintenance, training, finance and future investment policies

### **Remote Condition Monitoring Training**

Training for smart business through terminal asset digitalisation with our PACECO SPYDER.

### **Result driven Maintenance Training**

After our Maintenance Management Training you may optimize the economic efficiency and productivity of your maintenance process



**paceco**  
**seamulator**



## Where experience and results converge to make the most out of your Container Terminal

**Maintenance, Repairs & Inspections: we take care of every aspect of your terminal to promote smooth operations**

With a highly qualified customer service, we are totally committed to our customer's business. Our scope extends to the complete life-cycle of your equipment. We are immediately available on a worldwide level for any damage arising in cranes or TOS systems

- ❖ Maintenance contracts
- ❖ Pit stop Maintenance
- ❖ Maintenance Protocols
- ❖ Crane Assessment
- ❖ Structural Inspections
- ❖ Mechanical Inspections
- ❖ Immediate Responsiveness



- ❖ 24/7
- ❖ Engineering Team
- ❖ Maintenance Evaluation & Assessment
- ❖ Result driven Maintenance Contracts
- ❖ Condition Monitoring Contracts
- ❖ Colateral Maintenance
- ❖ Management Contracts

# Where experience and results converge to make the most out of your Container Terminal

## Safety & Certifications

Certifying all terminal operations and assets turns your terminal into a safe working environment where technical, operational and financial risks are minimized

- ❖ Safety Protocols
- ❖ Safety Tests
- ❖ Safety Certifications





# Where experience and results converge to make the most out of your Container Terminal

## Terminal Assessment & Consulting

Turnkey Container Terminal solutions for Brownfield & Greenfield projects: our experienced team favours deep insights and analysis into our individual customer's needs

- ❖ Brownfield & Greenfield projects: Terminal civil works, survey over suitable assets, analysis of terminal processes, Terminal Automation & Digitalisation
- ❖ On-site monitoring of manufacturing & assembly works: material & manufacturing quality control and tracking, control over processes, materials and safety
- ❖ Safety in terminal commissioning processes





## Where experience and results converge to make the most out of your Container Terminal

### Crane Accessories

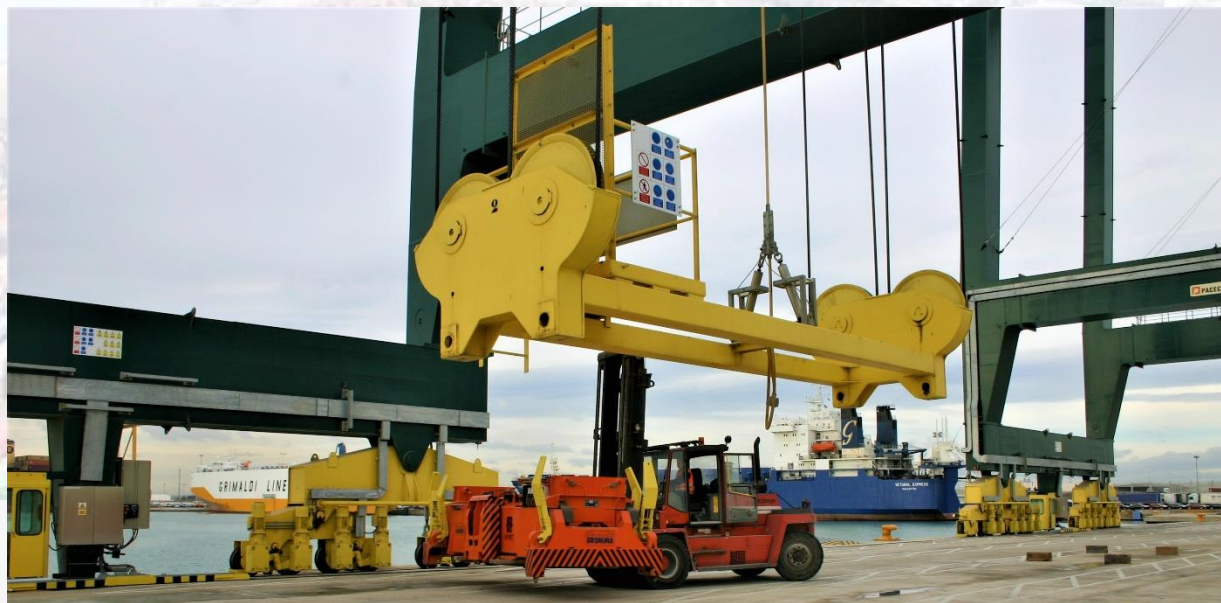
Accessories and Lifting Devices for STS-Portainer® and STS-Transtainer® cranes

Safe lifting operations thanks to original certified OEM high-quality accessories: minimizing the risky business of lifting and fixing containers and their far-reaching economic and safety implications

**OEM**  
**QUALITY**



 **PACECO® GROUP**



## Where experience and results converge to make the most out of your Container Terminal

### Crane Components Replacement

Manufacturing of Spare Components according to OEM drawings and delivery of commercial spare parts

Ongoing support by our experienced technical team to choose the most suitable original certified OEM high-quality spare part and on-time delivery to keep your business going

**OEM**  
**QUALITY**



 **PACECO® GROUP**





**Any large scale service around container cranes: safety, quality and profitability at the heart of our Engineering Works and actions**

## **Crane Refurbishment, Upgrading & Modifications**

Crane modernization, modification and refurbishment to keep your crane up to date and enhance its profitability

### **Refurbishment**

- Emergency Drives & Brakes
- Gantry
- Spreader & Trolley Power Supply
- TLS&Anti Snag
- Weighing System
- Storm Brakes
- Emergency Brakes
- Anticollision Systems
- Maintenance Trolley
- Rope Tighten Systems
- Wire Ropes Rewind

### **Upgrading**

- Crane Control System
- Crane Management System
- Operator's cabin
- Safety and Safeguard
- Power Tension Converter
- Operator's Console
- Electronic Antisway
- Combinators
- Checkers and Boom Cabins
- Elevators

### **Modifications**

- Span extension
- Height increase





**Any large scale service around container cranes: safety, quality and profitability at the heart of our engineering Works and actions**

## **Crane Relocation**

Fully erected crane transport and large part transportation on trucks and/or ships

Fully erected crane transport from the crane manufacturing area to your terminal or crane parts and components transportation to the erection site before assembly: safe, smooth and quick service offered by highly experienced personnel



**Any large scale service around container cranes: safety, quality and profitability at the heart of our Engineering Works and actions**

## **Crane Erection**

From crane components vessel load/unload, through erection area disposition and assembly, up to crane Jack-up.

Our engineering and technical teams work together to take care of the whole crane erection process: crane components loading and unloading on ships and/or trucks, erection area disposition, parts assembly and crane Jack-up





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