

MITSUI CRANES & SYSTEMS

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Mitsui Engineering & Shipbuilding

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Paceco®, Portainer®, Transtainer®, Supertainer®, BufferStation®, and RailShuttle® are registered trademark of Paceco® Corp in United States.



Established and Reliable Technology Supporting the Worldwide Logistics.

Since 1930s, Mitsui Engineering & Shipbuilding Co., Ltd. (MES) has produced cranes. We are a key player in Container Crane supply business and have been since 1960s.
We have designed and manufactured various kind of cranes, especially in the field of the container cranes, we have delivered more than 1400 units of cranes to ports of all over the world since the first delivery of container crane to Kobe port in Japan in 1967.
We, MES, are not only a crane hardware supplier but also software supplier, i.e. while we supply various cranes, we also provide the container terminal management system.
MES's wide range of products contributes to the various aspects of our customer's demand.

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Portainer®



Tokyo, Japan



Rated Load	40.6t	Hoist Speed	70/150m/min	Rated Load	65t	Hoist Speed	90/180m/min
Outreach	50m	Trolley Speed	240m/min	Outreach	67m	Trolley Speed	240m/min
Lifting Height	36.2m	Gantry Speed	45m/min	Lifting Height	47m	Gantry Speed	46m/min

○Feature | Articulated Boom, Seismic

Port Klang, Malaysia



Subic Bay, Philippines



Rated Load	40.6t	Hoist Speed	60/120m/min	Rated Load	50t	Hoist Speed	80/160m/min
Outreach	37m	Trolley Speed	180m/min	Outreach	56.6m	Trolley Speed	240m/min
Lifting Height	32.5m	Gantry Speed	45m/min	Lifting Height	40m	Gantry Speed	46m/min

○Feature | Articulated Boom

Pasir Panjang, Singapore



Gebze, Turkey



Rated Load	61t	Hoist Speed	80/180m/min	Rated Load	65t	Hoist Speed	90/180m/min
Outreach	63.5m	Trolley Speed	240m/min	Outreach	63.1m	Trolley Speed	240m/min
Lifting Height	43.5m	Gantry Speed	45m/min	Lifting Height	40m	Gantry Speed	60m/min

○Feature | Hatch Cover Stand

Kobe, Japan



○Feature | Earthquake Seismic Isolation Device

Osaka, Japan



Rated Load	40.6t	Hoist Speed	70/160m/min	Rated Load	40.6t	Hoist Speed	60/130m/min
Outreach	50m	Trolley Speed	210m/min	Outreach	37m	Trolley Speed	180m/min
Lifting Height	36m	Gantry Speed	45m/min	Lifting Height	32m	Gantry Speed	45m/min

○Feature | Earthquake Seismic Isolation Device

Toyama, Japan



Portainer®

State of the Art Feature

Feature 01 Large Scale Crane

The market demands larger size of Portainer® (ship-to-shore) cranes to accommodate the increased volume of containers and the enlargement of container vessels. The largest size of Portainer® crane we have manufactured is 67m outreach and 52m lifting height which is capable of handling today's largest container vessel.

Point 01 Portainer® capable of today's largest sized vessels.

Point 02 Portainer® crane design can meet the future enlargement of container vessels.





Feature 02 Mono Box Boom

Lighter crane dead weight; lighter wheel load and higher rigidity.



Feature 03 Self Propelled Trolley

Self propelled trolley design system does not require wire ropes for trolley traverse and reduces future maintenance costs. In addition, the self propelled trolley enables the quick control response of traversing.



Feature 04 Unit Drive System

Simple unit drive design makes maintenance and replacement works much easier. The unit drive system eliminates the open gears for improving efficiency of maintenance works.



Feature 05 Centralized Location of Devices for Easy Maintenance

Centralized location of devices for easy maintenace by centralizing the location of devices at the end of the girder, our Portainer® crane facilitates easy access and enhances maintenance efficiency.



Feature 06 Walk-in Type Control Panel

Walk-in type control panel improves the efficiency of all electrical system checks. Our design provides wider work space for easy access.

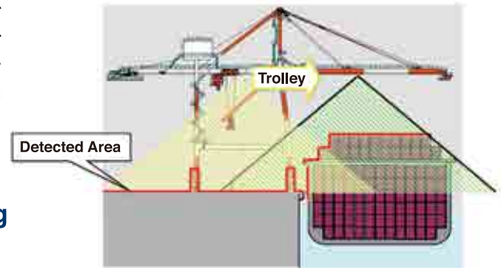


Option 01 Operation Assist System (Ship Profiling System)

Ship profiling system detects position of the spreader and the object on the ground and vessels by 2-D laser sensors attached to the trolley. When the spreader approaches to the object, the anti-collision system slows down and stops the spreader automatically.

Point

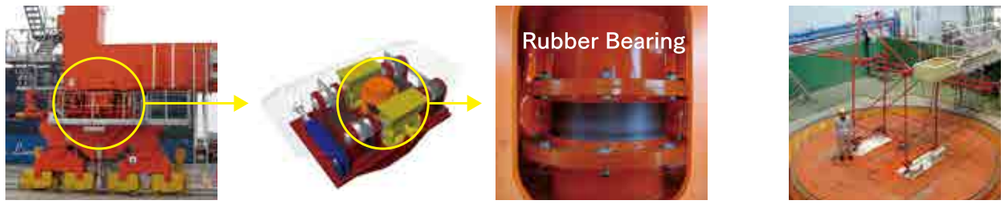
Less damage to spreader during lowering operation into vessel hold.



Option 02 Earthquake Seismic Isolation Device

The earthquake seismic isolation device (rubber bearing type) minimizes the damage to the crane by an earthquake and provides business continuity of container terminal. When an earthquake occurrs, the seismic isolation device is activated by releasing shear pins, and isolates the crane structure from the earthquake. During the normal operation, the seismic isolation device is fixed and it does not affect the container handling operation.
MES have delivered a number of units of Portainer® with anti-seismic device that complies with the governmental technical evaluation regulated in 2006 in the Port and Harbor Law of Japan.

○Earthquake Seismic Isolation Device





Transtainer®

Kobe, Japan



Shimizu, Japan



Long Beach, United States



Panabo, Philippines



Tanjung Pelepas, Malaysia



Buenos Aires, Argentina



Hakata, Japan



Tokyo, Japan



Specification

Models		RT4020	RT4023	RT4026
Rated Load(LT)		40		
Span(m)		23.47		
Hoist Speed (m/min)	Rated Load	20	23	26
	Empty Spreader	45	52	58
Trolley Speed(m/min)		70		
Gantry Speed(m/min)		90 / 135		
Gantry Speed(m/min)		90 / 135		
Drive Type		Inverter		
Trolley Drive Type		Wheel Drive(Unit drive system), 2WD/4WD		

Standard / Option

Subject	Standard	Option
Lifting Height	15.24m(1over4)、18m(1over5) 21m(1over6)	
Steering	0-90˚ Motored Steering	Intermediate Steering (Center Pivot)
Power Supply	Cable Chain	Festoon
Spreader	20/40 Electrical Telescopic Type	20/40/45 Electrical Telescopic Type
	Extending Time :22 sec (20'/40')	Extending Time :27 sec (20'/45')
	2 sets of Fixed Guide Flipper (at Cabin side)	Movable Guide Flipper
Adjusting	Skew: ±4˚ (at 4 meter above ground)	Trim (±3˚)
Anti Sway System	Torque Motored	V Roping
Cabin Console	Fixed	Adjustable
Lighting	Sodium Light	Metal Halide、LED

Transtainer®

State of the art Features

Standard


Electrical Steering


Ball Race York


Trolley Arrangement for Easy Maintenance


Trolley Cable Chains

Option


Wide Glass Window
for Operator Cabin with Platform


Runway Monitoring Camera


Auto Steering with Gyro+/-50mm

Feature 01

Lineup of Electric Transtainer

Three types of electrified Transtainer® (Rubber Tyred Gantry Crane) crane contribute to your efficient environmental-friendly operation.

01 Cable Reel on Board

02 Bus-bar

03 Cable Reel on Carrier (patent pending)







Feature 02

Lithium Ion Hybrid

MES HYBRID

Applying both the large size battery and the engine valuable speed control system improves efficiency by 60%. The smaller engine needed for the lithium ion hybrid Transtainer® also reduces the the cost of maintenance as well.

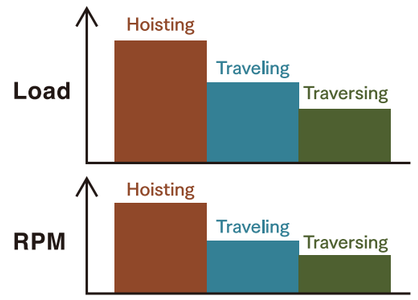


Feature 03

EVSC(Engine Variable Speed Control)

MES ecoTT

Engine Variable Speed Control (EVSC) system controls the RPM based on the amount of the load to the engine.



Industrial Crane



Loader for Steel Products



Jib Crane



Rubber Tyred Gantry Crane



Unloader



Loader for Steel Products



Unloader



Goliath Crane



Grab Bucket



Industrial Crane

Feature of Mitsui Industrial Crane

01 Delivery Record of 4 Drum Type Unloader

We have developed and delivered Unloader with 4 drum type rope trolley ahead of the MES competitors . By utilizing 4 units of drums whose movement is electrically controlled, operators can smoothly control holding and closing of bucket, hoisting and trolley traversing. Furthermore, with the durable and light-in-weight bucket, Mitsui Unloader can be operated at maximum performance.



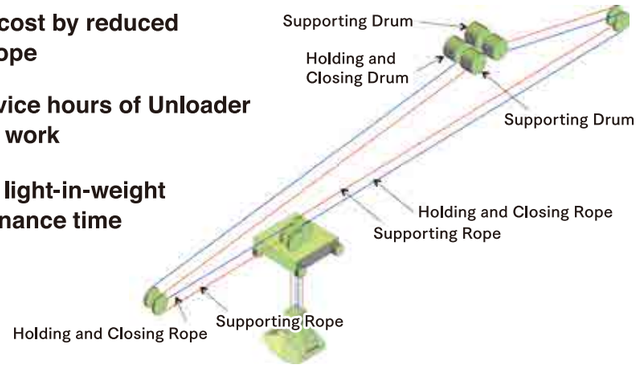
02 4 Drum type rope trolley system

Instead of the complex conventional rope trolley system, we adapted simple 4 drum type rope trolley which facilitates wire rope replacement. This system is advantageous as follows:

Point 01 **Saving maintenance cost by reduced quantity of the wire rope**

Point 02 **Reducing out-of–service hours of Unloader for rope replacement work**

Point 03 **Simple structure and light-in-weight and minimum maintenance time**



03 Durable and Light-in-weight Bucket

We have partnership with Bucket's maker with extensive experience in deliverying durable and light-in-weight buckets.
Durable and light-in-weight bucket enables the maximum lifting load, with deduced power consumption and lighter dead weight of the crane. These merits also contribute to minimization of the investment for civil construction.





CTMS

Container Terminal Management System



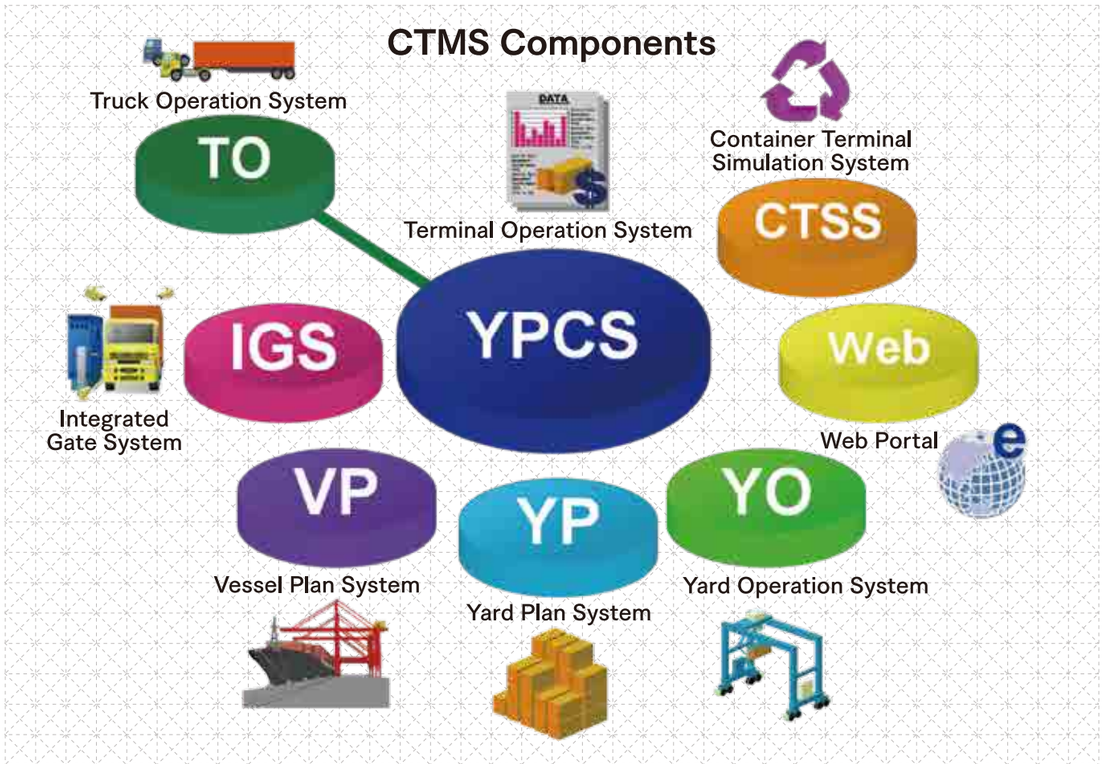
MES's total solution with the combination of software and hardware realizes the optimization of the container terminal operation and the related business procedures

Point 01 MES provides the most optimum system by combining the proven software package based on ourthe extensive long experience and the state of the art hardware design.

Point 02 The drastic reduction in operation costs can be achieved by rich functions for operational efficiency and the user-friendly interface of our CTMS

Point 03 The customer service is improved based on the various proven and reliable CTMS functions such as information disclosure on Internet, etc.

Point 04 The reliable and safety system operation can be realized based on the finest support service by MES



YPCS



IGS



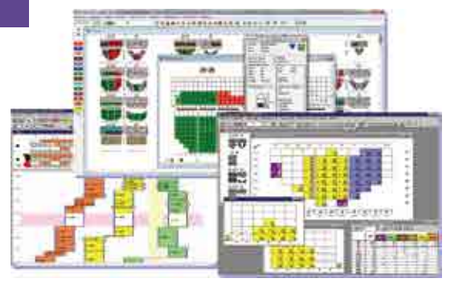
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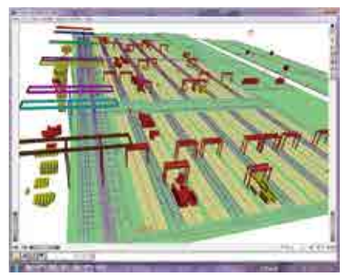
TO



VP



CTSS



YO



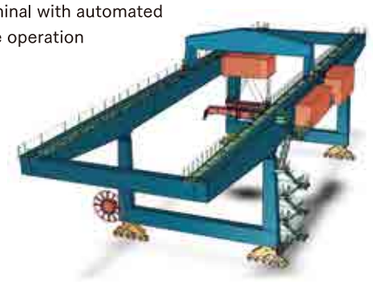
Research & Development

MES endeavors to develop new technologies for a variety of products,especially in the container crane market to meet the customer needs. In cooperation with PACECO CORP., MES has been introducing new technology for the container logistics industry in the areas of high productivity, high technology, environment and safety.



Supertainer® designed to cope with mega vessel and perform 60 boxes per hour productivity.

Rail-mounted Transtainer® for rail terminal with automated /remote operation



- ☐ Supertainer®
- ☐ BufferStation®
- ☐ Large size Portainer®
- ☐ Yard Chassis Dynamic Assignment System

High Productivity | **High Technology**

Research & Development

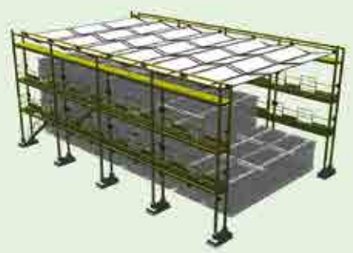
Environment | **Safety**

- ☐ RailShuttle®
- ☐ Automated Transtainer®
- ☐ Operation Assist System
- ☐ Automated Terminal Operation Management System

- ☐ Hybrid Transtainer®
- ☐ Electrical Transtainer® with Auto Plug-in/out
- ☐ Sun Shield Device for Reefer Container
- ☐ Transtainer® Automatic Arrangement System

- ☐ Earthquake Seismic Isolation Device
- ☐ Anti Collision Sensor
- ☐ Chassis Hanging Prevention
- ☐ Remote Crane Management System

Sunshield Device for reefer container stand controlled (open/close) by CTMS



Seismic isolated device cope with massive earthquake with easy maintenance.

Normally

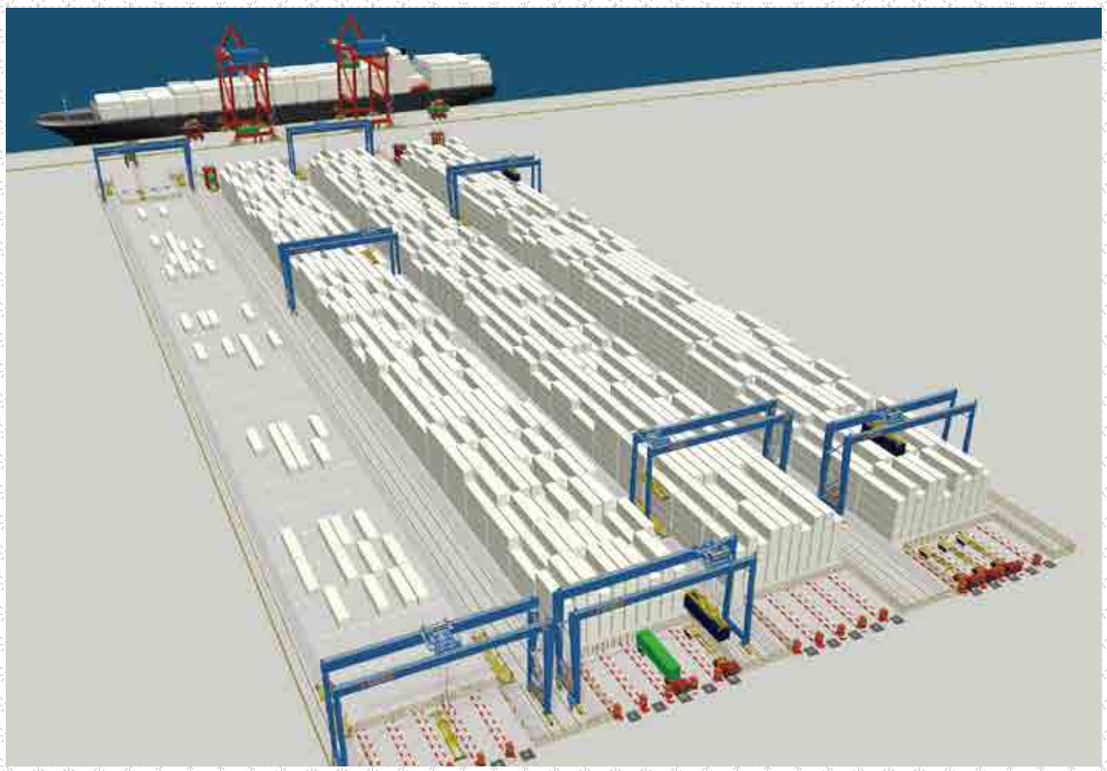


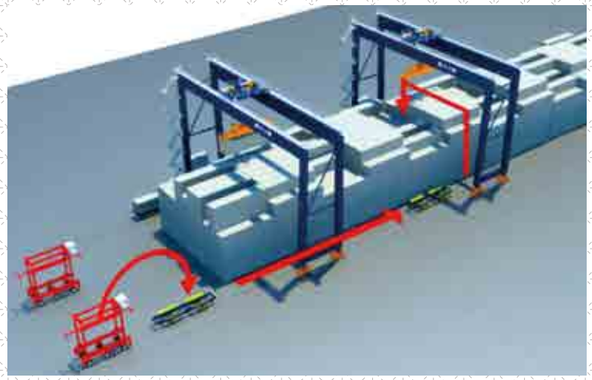
After Earthquake



Automated Terminal with New RailShuttle® System

The RailShuttle® System is an automated container yard that uses Automated Stacking Cranes (ASC) to stack containers and RailShuttle® vehicles to transport containers within the yard. The RailShuttle® system reduces energy consumption by 70% over traditional ASC operations by using the lightweight RailShuttles® to move containers instead of massive ASC's. The system also improves productivity by 40%, since the operation allows the cranes to focus on stacking and reduces their gantry movements. The combination of the ASC and RailShuttle® especially improves vessel handling productivity compared to conventional ASC terminals. When focused on loading and discharging vessels, a RailShuttle® yard operates at nearly 2x the productivity level of a conventional ASC operation.







MES Oita Works

Mitsui Engineering & Shipbuilding





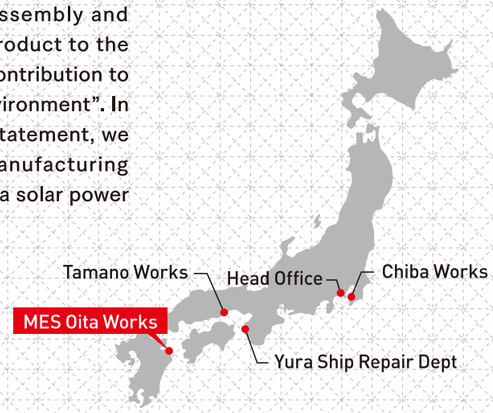




The Works supplying Made In Japan

The MES Oita Works has annual manufacturing capacity of 30 Portainer and 100 Transtainer. To ensure the quality of MES's products, we perform all the works in Oita Works, from design, manufacture, assembly and commissioning in Oita Works then deliver the completed product to the customers. At Oita Works, we have the mission statement "contribution to the realization of sustainable society in harmony with the environment". In 2003 in recognition of MES efforts in achiving this mission statement, we were granted Certification to the ISO 14001 and 9001 manufacturing standards. Recently, we started the installation of a new mega solar power plant in response to our environmental commitment.





MES Oita Works

Gross Area	1,701,890㎡
Factory Area	780,000㎡
Workers	Apprx. 500

Mega Solar Power Plant



Crane Assembling Faciliity



Material Stacking Yard

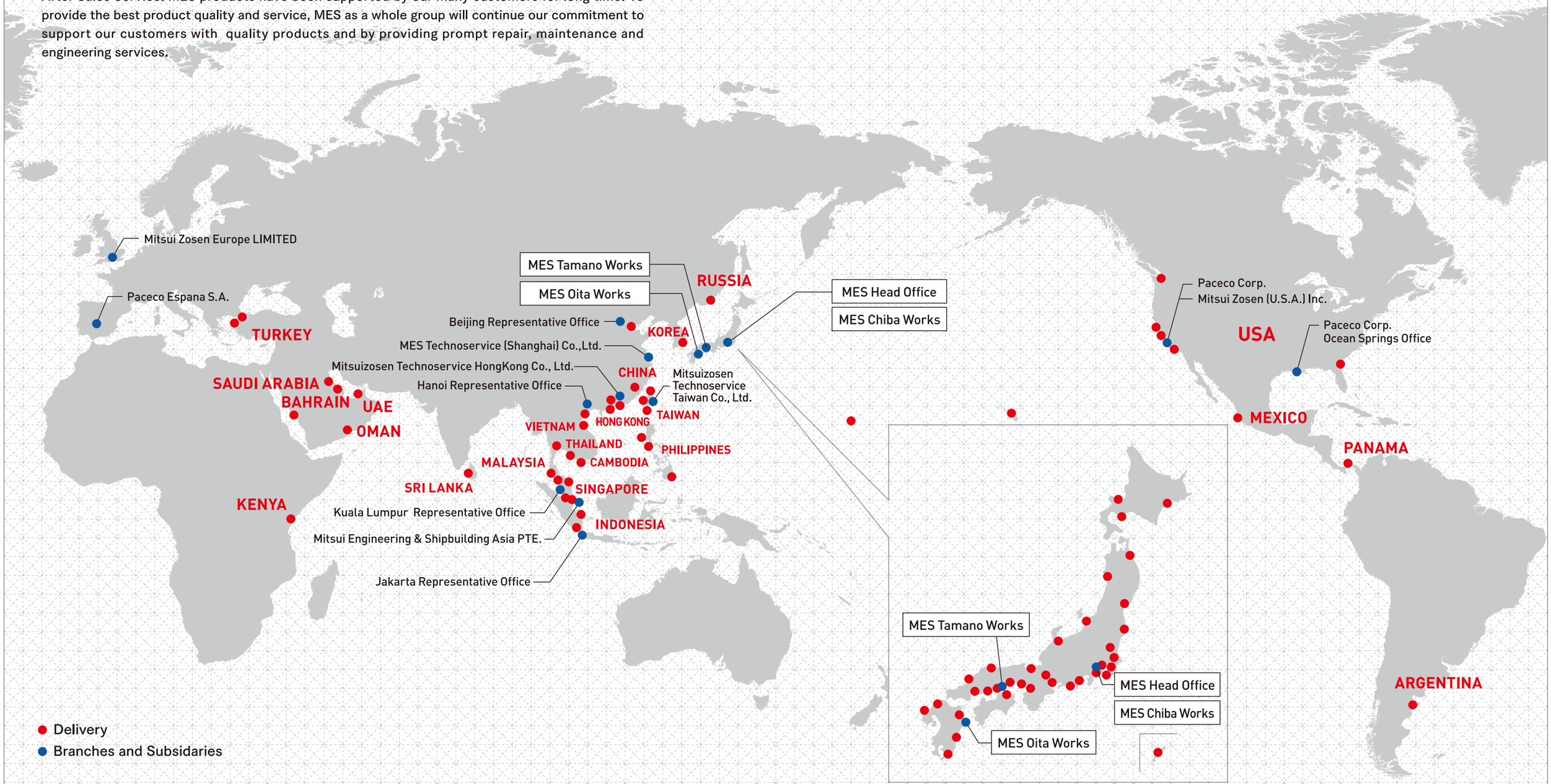


Jib Crane for Assembling



After Sales Service and Delivery Records

We have delivered to the ports in the world over 300 units of Portainer® and 1100 units of Transtainer®. Not only by improving the technology and quality of our products, we also offer prompt After Sales Service. MES products have been supported by our many customers for long time. To provide the best product quality and service, MES as a whole group will continue our commitment to support our customers with quality products and by providing prompt repair, maintenance and engineering services.



Mitsui Engineering & Shipbuilding