



# **SMS & SME**

## **With Cargo Handling Solutions**

**Hatch Cover**

**Lashing Bridge**

**Ro Ro Equipment**



**Company Organization**

SMS

SME

Service Network

**Products**

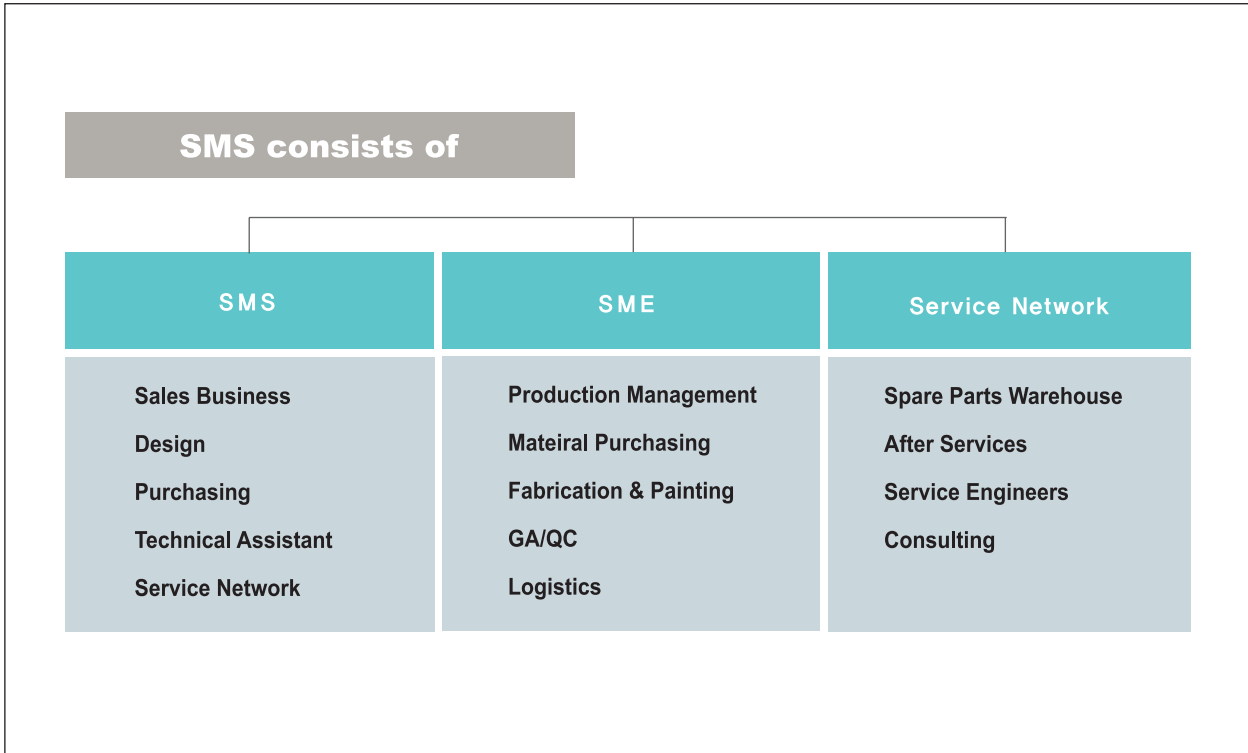
Lashing Bridge

Hatch Cover

RoRo Equipment

## SMS & SME

### Formerly Seohae Marine System & Engineering



Seohae Marine System has changed their name into SMS so as to be easily identified and get close to global ship owners and customers since 2011.

SMS is a leading technology-based company, supplying various Hatch cover, RoRo system and Lashing bridge as main products to shipyards in Korea, China, Vietnam, India and Japan. Also the delivery record has reached more than 1,000 ships to worldwide owners and users.

The supply range of hatch cover is for various vessels from 5K up to 400K Bulk carriers and VLOC, and from 1,000TEU to 18,000TEU of Mega container ships owned by Rickmers, Zodiac, Evergreen, AP Moller, NOL, NYK, MOL, OOCL, etc., and the range of Ro-Ro system includes 6,800 unit PCTC, Ro-Pax at HHI and STX.

SMS design and produce about 5,000 tons per month from our Mokpo factory which has 150,000m<sup>2</sup> area including large in-factory paint shop with experienced 400 employees under the quality control of ISO 9001 DNV. SMS components are usually genuine Korean, European and Japanese origin, so we can provide long life and reliable products. The prompt after-sales and services are also available from our head office and worldwide service networks.

SMS website is always available at [www.sms-marinesystem.com](http://www.sms-marinesystem.com) for more information and guidance.

## SMS

### Head office in Busan

SMS is Operated from headquarters in Busan, Korea and supported by a worldwide network of associate companies and agents. SMS has provided innovative state-of-the-art system solutions and products designed to meet the most exacting requirements for all typed and sized ships.

As a major manufacturer of turnkey equipment and installations, we supply high-quality cargo handling system to shipyards and shipping companies through the world. As a technical level, we also actively participate in leading-edge industry research programs and communication technologies.

SMS focuses on safe and advanced designs for our customers. Development work is currently refining designs to meet future demands for economical shipbuilding. We have established Technical Consulting Division, extension of offering the best service to our valued customers as well.

Despite our short history, we have always served customers with up-to-date technology as a technical partner and are now very proud of our works because most of our customers are very satisfied with the quality and the performances of our systems. We in particular built up a good reputation with our products at shipyards and with ship owners.

With the aim to work closely to customers, we always do our best to provide intelligent and innovative solutions that will create improved quality, safe operations and easy maintenance of our products.

Through our newly established worldwide service network, we can provide more reliable and qualified after-services wherever the ships are.



## SME

### Factory in Mokpo

We provide comprehensive technical service to customers from the initial and concept design stage to technical consulting. Design divisions and our well experienced staff will assist you in developing the most advanced designs and solutions. We produce most vital and spare parts from our workshop in order to provide a prompt service for the customers' demand.

Practical experience in steel block fabrication and cargo handling systems assure us that we are establishing the most comprehensive and advanced production system available. With our 2<sup>nd</sup> factory in Mokpo, we offer customers our systems from design to installation, which is turnkey solution.

As the rising demand for a complete set, SMS opened the new factory named SME in Mokpo, at the southwest part of Korea. The location benefit enables customers to eliminate additional costs, liability issues, and time delays so that SME can be associated with multiple vendors to accomplish various parts of complete tasks. Also, we provide a reliable quality for all process and guarantee our products with a concrete access.



## Lashing Bridge



Lashing bridges are equipped for large ships over 5,000 TEU and designed to restrain racking forces from container stack loads and create free space maintenance for reefer containers. SMS has concentrated on developing lashing bridges for easy loading/unloading of containers and hatch covers.



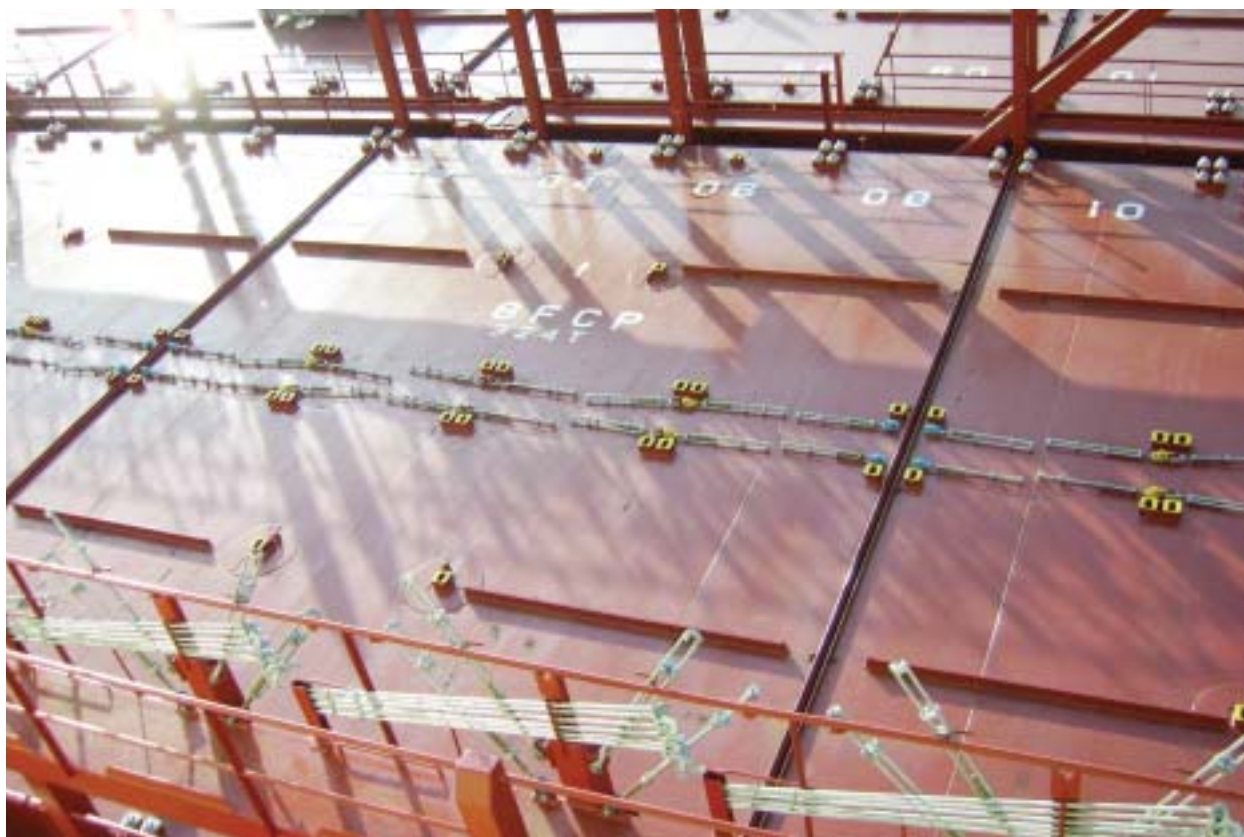
Recently we developed new type of lashing bridges which improves a few operating aspects and saves the initial investment. Also, we improved the vibration mode and natural frequency to avoid a resonance from engine/propeller. Our solution is found from the tall and slim lashing bridge in aft ship. In order to investigate the vibratory characteristics of the lashing bridges, the free vibration analysis was carried out. SMS has been calculated and discussed the measures with yards. The measure of our lashing bridge is tested and finally applied to mega-containership.



We always provide a consistent service to customers from design to complete fabrication, taking into consideration container lashing, hatch cover maintenance and the specific requirements from customers.

## Hatch Cover

### Pontoon Type Hatch Cover



Pontoon type hatch covers are available as single or multi-panel units with non-sequential operation using flap sealing systems.

Hatch cover panels are designed to accommodate higher container stack loads.

Pontoon hatch covers have heavy container stack loads up to 90T/20' & 140T/20' or 45', while the panel weight is limited by the capacity of the port crane.

Non-uniform load of container stacks in a very dynamic condition develops a very great downward force through a hatch cover.

Especially around the hatch cover split line, an enormous torsion load generates.

In order to solve the above-mentioned issues, SMS improved hatch cover structure and rearranged the main girder. It led to the better productivity and less welding distortion.

Furthermore, SMS has applied the restricted 20' container loading in 40' or 45' loading hatch cover for the vessel mostly with 40' or 45' container. It has brought 20~30% weight saving and achieved the quality innovation in hatch cover system.



## Hatch Cover

### Folding Type Hatch Cover



#### Single Folding Type Hatch Cover

Folding hatch cover manufactured by SMS is operated by hydraulic cylinder with faultless and safe movement. Operation of hatch cover is non-sequential/partial with the easy access of hydraulic systems. Manual or automatic cleating system secures the panels when closed. Weather-tightness of hatch cover is kept with sealing system.



#### Multi Folding Type Hatch Cover

SMS designs multi-folding hatch cover to keep minimum stowage space and specific requirements. Leading pair is operated by hinged arms on the leading pair and then the trailing pair is sequentially operated by bell crank arm. Each pair is opened to its vertical position and drawn along the longitudinal hatch way. Sequential operating mechanism secures malfunction of hatch cover operation.



#### Hydraulic Cylinders

SMS cylinder is made of high tensile carbon steel on the whole rod, or in way of the top seal and wiper ring on big cylinders. At rod end, cylinder is welded by stainless (SUS 316) sleeve with chrome coating to protect from corrosion. For additional protection of the piston rod surface, the space between the top seal and wiper ring is fitted with grease nipples.



## Ro-Ro Equipment

### Stern/Side/Bow Equipment



#### Bow Ramp / Door

Bow ramp/door open parallel to side shell or upwards. Bow ramp plays as a corrosion bulkhead door in case of detachable type. For conventional type, another corrosion inner bulkhead door is to be considered. Automatic control includes sequential operation by PLC or manual control. Bridge indication is provided for the door in a closed/locked condition.



#### Side Ramp / Door

Two or three-level side ramps allow convenient cargo handling under various ship draughts and port conditions. It is operated by hydraulic winches and working levels can be adjusted through jigger winches.



#### Stern Ramp / Door

SMS stern ramp/door is designed to match the vessel's dimensions and the range of quay heights. It will serve to make operational efficiency. The operation of the ramp is achieved either of two directional hydraulic cylinders, arranged by each side. When the ramp at the close position will act as a weather-tight door. Cleats and locking devices secure the ramp/door.

## Ro-Ro Equipment

### Internal Equipment



#### Liftable Car Deck

SMS has been specializing in the design of inner ramps for RoRo ships and especially developed a thin car deck system which is an up-to-date car deck ramp applicable to PCTC. The thin car decks can guarantee increased stability and reduce the ship's weight so that they allow the shipyard/owner to have an optimized ship design. Standard modular systems also offer easy installation, minimal maintenance and cost saving.



#### Ramp Cover

To ensure safe and efficient access to cargo and vehicles on Ro-Ro vessels and Ro-Pax ferries, special hydraulic ramp cover is required in order to have a reliable load distribution upon various decks within the ship.



#### Inner Ramp/Door

To smooth the passage of vehicles, there are several types of inner ramp/doors. Inner ramp/door is designed for vehicles to access between the decks or to give flexibility of vehicular mobility between two different deck levels.

Vehicles decks are to be divided into several compartments. On large ocean-going RoRo designs, such as export vehicles carriers and RoRo container liners, it may be necessary to fit doors in any transverse bulkheads to ensure efficient cargo operations.



## Turnkey Solutions

SMS is one of the most experienced, comprehensive and trusted turnkey manufacturing companies in South Korea. Our turnkey system management spans the range of complete engineering, designing, manufacturing, assembling, and servicing of custom systems and steel materials handling. Our expertise in all aspects of turnkey manufacturing of cargo handling system makes us the industry's total systems solutions providers.

As the rising demand, SMS opened Mokpo factory which has 50,000 ton capacity per year, so that we can provide turnkey solution from initial design to installation with our all products within customer's requested date. Also, our turnkey solution provides shipyards fully tested and ready to install upon delivery which can be a tremendous advantage to shipyards since it eliminates the need for shipyards to manage the projects.

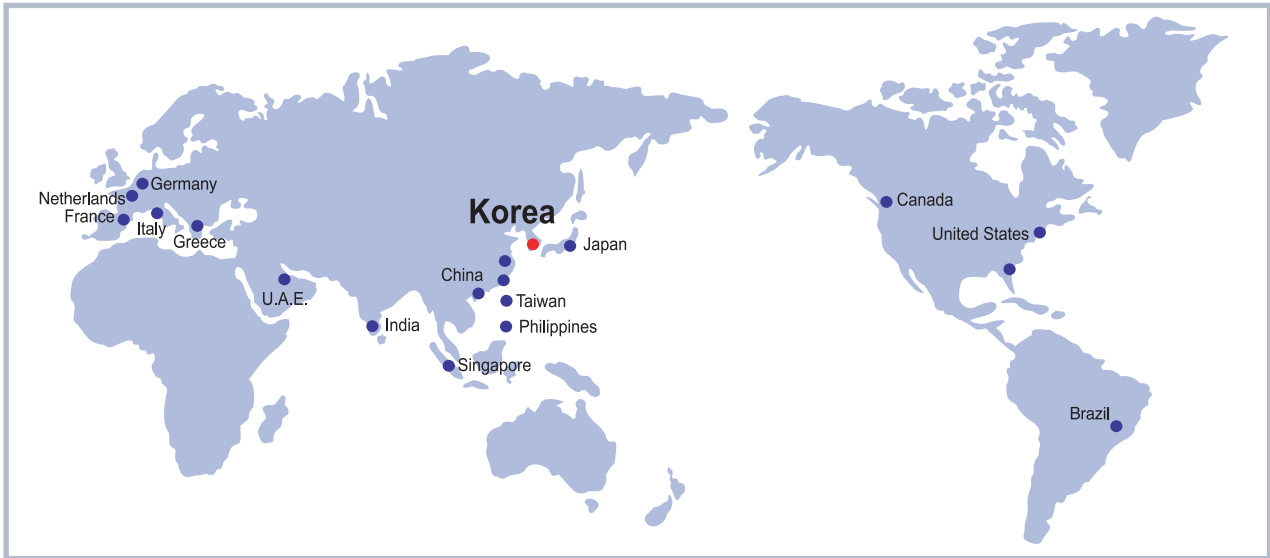
We manage all the steps from the beginning to the end, in order to match our services to customer's needs including providing labor, supervision and delivery. Our teams analyze existing system to identify opportunities for improved performance and reliability.

Through various projects and accumulated experiences, we have already provided our products to Korean, Chinese, Indian and Vietnamese shipyards using a turnkey solution.





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## **Ready to support you all the time**

For more information, please check our website  
[www.sms-marine-system.com](http://www.sms-marine-system.com)



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