Marine

EQUIPMENT & SOLUTIONS



Our **Vision**

is to be the **PREFERRED GLOBAL SUPPLIER** of equipment solutions and services for the marine and offshore industry.

Our **Value**

is in delivering reliable equipment that guarantees system uptime and helps our customers **BOOST PRODUCTIVITY AND PROFITABILITY**.

Our **Strategy**

is built around **WORKING IN PARTNERSHIP WITH OUR CUSTOMERS** to devise intelligent, innovative and cost-effective solutions.

Content

General cargo	4
Bulkers	6
Containerships	8
Tankers	10
RoRo	12
PCTC	14
RoPax	16
Cruise ships	18
Naval vessels	20
Shipyard solutions	22
Service	24
Added value solutions	26

General cargo



At TTS we are responsible for the design and installation of a wide range of cargo handling systems. We understand that customer requirements are particular to vessel type, so we offer custom solutions alongside a wide range of standard products, all designed to equip a variety of vessels from short-sea traders to reefers and specialised combination carriers.

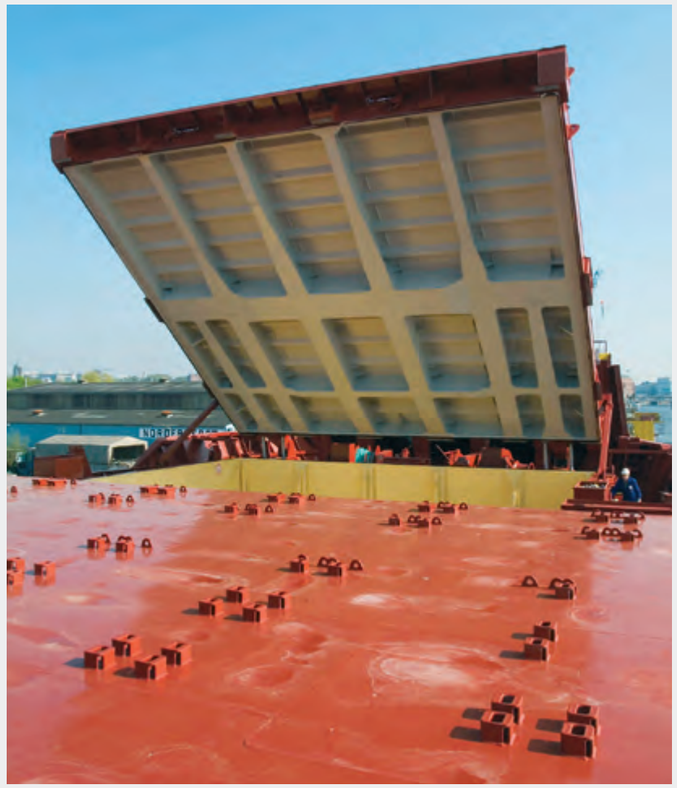
The company has been delivering general cargo handling solutions to customers for many years, with equipment such as hatch covers, cranes designed for various types of cargo loads, and dedicated side-loading systems and external doors.

We are also expert in delivering turnkey solutions, with each cargo handling component designed to function perfectly alongside the others within a ship-wide system.

Modular construction enables TTS to design and build equipment for divers applications from standard components, ensuring minimal downtime as well as the ready availability of spare parts when needed. And this standardisation allows complete flexibility for customisation without the need for expensive upfront engineering, thereby reducing the risks for customers and speeding the job of creating effective solutions.

PRODUCT TYPES

- Heavy lift cranes
- Weatherdeck/tweendeck hatch covers
- Side loading systems
- Stern ramps
- External doors
- Cargo cranes
- Gantry cranes
- Knuckle/telescopic cranes
- Straight boom cranes
- Rescue boat davits
- Anchor/mooring winches



Bulkers

Onboard equipment for the bulk shipping sector must be specially designed to take into account the hazardous nature of unpackaged bulk cargoes and the wide variation in port facilities to handle the loads. Bulker equipment must therefore be built to maximise capacity and efficiency as well as safety.

Among our targeted solutions is a loading/unloading system which provides a range of tools, including options for handling a variety of self-discharge cargoes, thereby streamlining bulk operations considerably. This system is designed to help short-sea shippers load and unload more cargoes faster, thus increasing ships' revenue.

Also designed especially for the bulker market, and characterised by robust design and high cycle times, are TTS bulker cranes. All cranes come with an unlimited slewing range of 360° and with the machinery protected against maritime weather conditions by mounting inside the crane housing. These cranes are also available as electric models where the main components – hoisting and luffing winch, as well as slewing motors – are electrically driven, rendering improved energy efficiency and lower operational costs.

Another example of our bulker market expertise is the TTS side rolling hatch cover, which ensures that the requirements of the owners and regulatory authorities can be met in full. Continuous product development has led to strong, low-weight covers with reduced manufacturing time.

PRODUCT TYPES

- Bulk cranes
- Weatherdeck hatch covers
- Cargo cranes
- Gantry cranes
- Knuckle/telescopic cranes
- Straight boom cranes
- Rescue boat davits
- Anchor/mooring winches

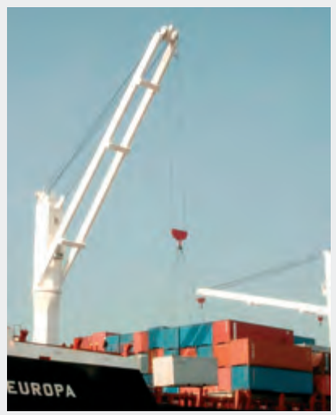






Containerships





TTS supplies a wide range of functional products for the world's container fleet. Since the development of the first containership, we were involved in the creation of lift-on/lift-off hatch cover systems. Use of advanced stress-calculation systems and computer-aided design technology for the steel structure enables these hatch cover panels to accommodate higher container loadings, while keeping panel weights within the permitted maximum for handling by shore cranes.

Also designed for the tough demands of this customer sector, TTS delivers optimised container cranes with capacity from 1 to 250 tonnes that are suitable for use in any environment.

Reliable, durable and cost effective, our range of standard cranes solves the vast majority of lifting challenges for containership operators.

PRODUCT TYPES
Weatherdeck hatch covers
Cargo cranes
Rescue boat davits
Anchor/mooring winches



Tankers



It is our objective to develop and supply high quality solutions and equipment to tanker owners and operators, in order to support their productivity and value generation.

As the world's leading supplier of hose handling cranes for tankers, we know that standardised design and cost efficiency in production are key elements in this market segment. All our cranes are designed in accordance with Oil Companies International Marine Forum (OCIMF) requirements. Specialised needs for compliance, such as for tankers carrying explosive substances or other matters related to safety, are handled by the company's team of experienced designers.

The design and supply of deck machinery for tankers – including windlasses, mooring winches and knuckle/telescopic cranes – is also a specialised TTS activity.

PRODUCT TYPES

- Hose handling cranes
- Straight boom cranes
- Rescue boat davits
- Anchor/mooring winches



RoRo

TTS supplies both ship-based and land-based installations designed to ensure smooth cargo handling. Ship-based equipment typically includes stern ramps for access to a vessel's main lower and upper decks, as well as ramp covers to protect access to the lower hold and internal areas of these vessels. We also have many references for installation of large quarter ramps, internal ramps for distribution of cargo between decks, liftable/hoistable car decks, and watertight ramp covers and bulkhead doors to ensure the required compartmental division for water- and gas-tight integrity.

RoRo vessels operating on short-sea routes and larger, multipurpose RoRos, deep sea RoRos and ConRos designed for intercontinental routes need reliable equipment to serve in a variety of demanding conditions. Our customers in this sector require equipment that can be adapted to suit both extreme and odd-sized cargoes as well as unitised cargo such as cassettes, trailers or private cars. Our RoRo concept therefore combines great flexibility with fast and efficient cargo handling, with a focus on delivering solutions that allow vessels to operate to their full capacity at all times.

Land-based deliveries include linkspans which act as a bridge linking ship to shore, providing access for transferring cargo and passengers on and off RoRo vessels in port.





The world's largest deep sea RoRo – *MV Tönsberg* – first in a series of four vessels for Wilhelmsen and Wallenius, all with TTS cargo access equipment including a giant quarter ramp with a load capacity of 500t.

PRODUCT TYPES

- External ramps and doors
- Internal ramps, covers and doors
- Hoistable/liftable car decks
- Cargo lifts
- Linkspans
- Automatic mooring systems
- Straight boom cranes
- Rescue boat davits
- RoRo cassettes and translifters
- Anchor/mooring winches


Image courtesy of Albert Richardson

Hydraulically-operated upper deck linkspan supplied by TTS to help shorten turnaround time for Stena Superferries.

PCTC





The first ever Post-Panamax car carrier – *MV Glovis Spirit* – equipped with TTS external and internal ramps and covers for efficient logistics.

Pure Car Truck Carriers, PCTCs, are purpose-built RoRo vessels for the transportation of different types of rolling cargo such as private cars and trucks, heavy construction equipment and other heavy vehicles.

All major global car carrier owners and operators recognise the experience and knowledge that TTS brings to car carrier logistics. We understand the specific needs of these vessels, which have multiple decks in constant use for the loading of different vehicle types, and quarter ramps with a capacity of up to 500 tonnes.

The typical scope of PCTC cargo access equipment includes quarter ramp/door as well as side ramp/door for external access. In addition, we supply internal ramps for distribution of vehicles internally between decks as well as equipment to maintain watertight/gastight integrity.

Equipment to increase flexibility for different types of vehicles and deck heights is also crucial to our PCTC customers. We are specialists in hoistable car decks and ramps, shell doors for pilot and bunker access, hydraulic and electric manoeuvring systems, and electric control systems.

TTS has so far equipped around 250 car carriers with deliveries to all major yards building those vessels today.

PRODUCT TYPES

- Quarter ramps
- Side ramps
- External doors
- Internal ramps, covers and doors
- Hoistable/liftable car decks
- Mooring platforms
- Anchor/mooring winches
- Straight boom cranes
- Rescue boat davits

RoPax

The RoPax vessel is a flexible ferry concept combining RoRo cargo carrying capability with the comfort of a ferry transporting passengers and private cars. RoPax vessel design often allows for drive-through traffic such as loading aft and unloading forward, or vice versa.

The internal distribution of vehicles can be accomplished through deployment of internal ramps or by two-level shore ramps. For flexibility, RoPax vessels are often equipped with hoistable car decks to facilitate the loading of either two levels of private cars or one level of trucks and trailers depending on seasonal variations in cargo patterns.

For bow access, TTS provides equipment designed to meet the demands of marine safety regulations. A great number of vessels used by major RoPax ferry operators have been successfully equipped with bow doors of side-swinging type combined with the TTS patented folding frame bow ramp solution. Folding frame technology ensures a watertight ship even if the bow door fails. It is also a very space-efficient solution, so operators don't lose valuable capacity on car decks.

Our portfolio also includes land-based equipment such as linkspans, passenger gangways and automooring, all tailored to local conditions in port and designed for flexibility in meeting various demands. Traffic flow and the optimisation of turnaround times are crucial to smooth, safe and fast access and TTS delivers the expertise necessary to both ship and shore installations.

PRODUCT TYPES

- Bow ramps and bow doors
- External ramps and doors
- Internal ramps, covers and doors
- Hoistable car decks and ramps
- Cargo lifts and covers
- Provision lifts
- Linkspans
- Passenger gangways
- Automatic mooring systems
- Anchor/mooring winches
- Straight boom cranes
- Knuckle/telescopic cranes
- Rescue boat davits



Copyright Shippax, Mike Louagie



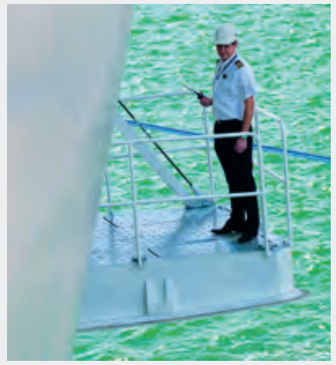
Movable passenger gangway providing safe passage for foot passengers between terminal and vessel. The outer part of the gangway is designed to extend telescopically toward the vessel as well as tilt vertically for fine adjustment. The entire gangway is vertically adjustable by approximately 7m as well as being able to move along the quay.

Cruise ships

Today's cruise ships are very large vessels with high demands on logistic systems and passenger and cargo access equipment. They also operate in environmentally sensitive areas. Therefore TTS has developed reliable, fast and environmentally-friendly doors and platforms that are optimised for the cruise ship industry and available with either hydraulic or electric operation.

TTS can also provide land based logistic systems, such as gangways and provision and luggage handling systems.

Our extensive product portfolio encompasses, for example, embarkation platforms delivered as a combined tender platform and watertight door; fully automatic high capacity telescopic ramps for stores and baggage handling designed to accommodate tide variations; provision elevators; and side shell doors used for passengers, pilot entry and bunker hoses.







Passenger gangway for a cruise terminal, which allows for a wide range of locations of the vessel's passenger door.



PRODUCT TYPES

- Shell doors and platforms
- Tender embarkation platforms
- Passenger gangways
- Cargo lifts
- Telescopic ramps
- Side loading systems
- Mooring platforms
- Anchor/mooring winches

Naval vessels





The US Marad Sealift vessel *MV Cape Rise* upgraded with a TTS slewing ramp and stern door, making operations more flexible and efficient.

In addition to equipping the world's merchant fleet, TTS has a long history of designing and supplying equipment for navies worldwide. Typical ship types include prepositioning ships, logistic support ships, docking ships and landing crafts. Our portfolio of products includes hatch covers, cranes, deck machinery, side-loading systems, RoRo and offshore equipment, making TTS a competitive partner in any military newbuild or conversion project.

The solutions provided to our highly specialised naval customers are developed to meet the demands imposed by military standards and procedures. Engaging TTS at an early stage in each project will ensure delivery of optimised cargo handling and logistic solutions, incorporating the latest technologies. We take care of all aspects of operational safety, reliability and availability as well as maintenance and service aspects during the lifetime of the vessel.

TTS has delivered many installations, for example to the US Navy as well as to the Danish, British, German and Chinese navies.

PRODUCT TYPES

- Bow and stern equipment
- Cargo lifts and covers
- External ramps and doors
- Internal ramps and doors
- Lifts
- Turntables
- Hangar doors
- Hatch covers
- Cranes
- Anchor/mooring winches
- Ship transfer systems
- Shiplifts







Shipyard solutions

Since the late 1960s TTS has been an international leader in the design, construction and installation of material handling equipment, shipyard production equipment and heavy load handling systems for newbuildings in shiprepair and naval yards. Supplying services, systems and technologies that meet the varied demands of the shipbuilding industries, TTS can provide complete product solutions for a very diverse group of customers.

Our product range for shipyards includes various types of transfer systems as well as launching and retrieval systems. Our highly advanced shiplifts minimise the space requirements at the waterfront.

PRODUCT TYPES

- Launching and docking systems
- Shiplifts
- Ship transfer systems
- Dual Walking Beams (DWBs)
- Powered Wheel Transporters (PWTs)
- Multiwheelers
- Shipyard consulting



When combined with a transfer system, multiple work berths provide efficient and environmentally safe work areas well away from the water, bringing efficiencies and improved return on investment to shiprepair yards and newbuilding shipyards around the globe.

In addition, TTS supplies a range of fluid bed transfer systems, offering significant benefits in helping to ease shipyard operations. These state-of-the art systems have demonstrated excellent performance over many years. Each delivery is tailored to suit the yard's specifications.





Global follow-up / service

TTS is committed to delivering cost-effective, safe and reliable systems backed up by a comprehensively equipped service network. And, by providing impeccable aftercare, we help our customers get the best possible return on their investment in TTS equipment.

We prioritise investment in our support network and its service hubs around the world, increasing our ability to serve customers quickly and efficiently with minimal disruption to their schedules.

It is a core value of our business to ensure that customers operate TTS-supplied equipment with efficiency and care. To this end, we offer service agreements and training packages tailored to our customers' specific business requirements. A long history of designing reliable hydraulic, mechanical and electrical systems informs the expertise of our service personnel. With these qualified, experienced engineers stationed in key locations worldwide, TTS can offer support at short notice, wherever the equipment happens to be.

TTS also offers conversion programmes which are designed to benefit shipyards and shipowners in preparing their existing equipment for a viable and competitive future. This includes the adaptation of equipment for use in new ways and for compliance with new rules and regulations.





SERVICE OFFERING

- Spare parts
- Maintenance and repairs
- Modernisation and conversion
- Training
- Installation and commissioning
- Surveys and inspection
- Rapid response service
- Service agreements



Added value solutions



Our philosophy is to create products that are easier to install, and with a low cost for maintenance and operation. Research and development is therefore central to our operations, adding value for our customers and benefitting the marine and offshore industries at large.

We use environmental legislation, as stipulated by national and international regulations, as a guide to minimum requirements. Recyclable products are used as far as is practically possible and we are constantly reviewing the creation and use of safer and cleaner technologies through research and development.

Special attention is paid to:

- High quality design that increases the economic lifetime of equipment and vessels
- Environmentally friendly and recyclable materials
- Development of electric operation to reduce the use of hydraulic oil
- The reduction of noise and vibrations from cargo handling and sub-systems
- Coating systems with minimised environmental impact
- Improved ergonomic considerations for crew.

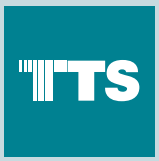
Owners, yards and consultants benefit from close cooperation with TTS at an early project stage to ensure that a vessel's layout will provide an efficient and economical framework for cargo handling. For instance, we offer cargo space analysis using virtual vehicle driving, collision/clearance control and loading simulations. When used in advance of detailed customer briefing, these processes help focus any project from the beginning on the most cost-efficient solution possible.

As TTS places great emphasis on designing equipment for cost-efficient manufacture and installation, design schemes are adapted to enable fabrication of high accuracy and quality. This is achieved through close cooperation with the fabricator, the TTS sub-contractor or the yard. Installation work is streamlined by tailor-made arrangements according to the yard's and the owner's preferences.



Competence, reliability and trust are the hallmarks of our business, and we work hard with customers to ensure the effectiveness of equipment throughout the ship's life cycle.

We understand that expensive assets cannot be allowed to lie idle, and that onboard space must be used to the maximum. So, from RoRo equipment such as ramps, car decks and linkspans, through hatch covers to cranes, winches and equipment for cruise ships and shipyards, our focus is on creating and delivering products and tailor-made service solutions that allow vessels to operate to their full capacity at all times.



www.ttsgroup.com