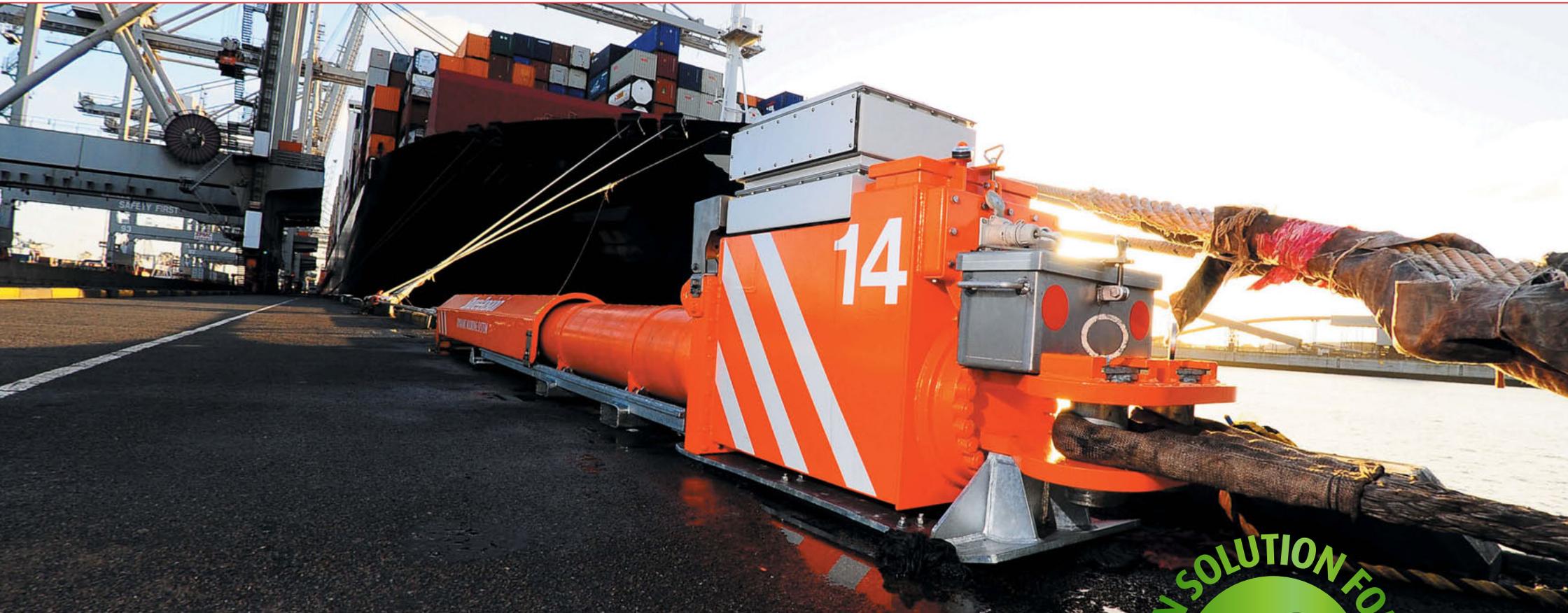


ShoreTension[®]

DYNAMIC MOORING SYSTEM



**SAFER MOORING; EFFICIENT
AND SUSTAINABLE OPERATIONS**





SHORETENSION; THE GREEN SOLUTION FOR SAFE MOORING



ShoreTension[®]
DYNAMIC MOORING SYSTEM

ShoreTension[®] is a system for safer mooring of sea-going ships that is as convenient as it is revolutionary. ShoreTension[®], a cylindrical device, can be flexibly used in any port at terminals where containers, general cargo and/or bulk are handled.

With ShoreTension[®], ships of any size can be firmly anchored to the quay. ShoreTension[®] significantly reduces movement caused by strong winds, currents, swell or passing ships. With the traditional mooring method using mooring lines on bollards, this movement is always present. In extreme conditions, the tremendous pressure this exerts on the ship can cause the mooring lines to snap with potentially serious consequences. As ports have experienced in the past, this is definitely a realistic risk. ShoreTension[®] mitigates this risk significantly. Ships are moored to the quay much sturdier and therefore much safer.

In addition, the flexibly deployable ShoreTension[®] aims to allow terminals to operate more efficiently. Because ships are moored alongside the quay with greater stability, ShoreTension[®] promotes unhindered quay crane operations and significantly reduces the risk of damage during unloading and loading. Furthermore, operations can continue for much longer in bad weather. Visiting ships can be handled more quickly.



**ENERGY SAVINGS, LOWER
COSTS AND CO₂ REDUCTION**

ShoreTension®

DYNAMIC MOORING SYSTEM

ENERGY SAVINGS, LOWER COSTS AND CO₂ REDUCTION

Making use of ShoreTension® also results in energy savings, lower costs and a substantial reduction in CO₂ emissions. Ships no longer need to use tension winches for exerting the constant tension on their mooring lines. These tension winches consume megawatts of power and are not nearly as effective. ShoreTension® can bear the tension of the largest cargo and passenger vessels available and requiring hardly any external energy.

HOW IT WORKS

The cylindrically shaped ShoreTension® exerts the same, constant tension to the ship's mooring lines which are fastened to the bollards on the quay. This requires no electricity except for an external hydraulic system which only needs to be used once to get ShoreTension® at the correct setting. After that, the cylinder of ShoreTension® hydraulically moves along with the forces which the mooring line is exposed to. This process continues perpetually without the need for additional energy. ShoreTension® aims to keep all mooring lines at the same, constant tension, also in case of swell, waves, wind and passing vessels - particularly crucial for the safe and stable mooring of vessels. It is the differences in tension between the different mooring lines which cause a ship to move and potentially cause the mooring lines to snap.



Because of the exceptional demands of ShoreTension® and requirements for safe mooring and efficient operations, Dyneema® mooring lines are used. These specially designed mooring lines are known for their strength, lightweight and durability, and provide extraordinary performance even in the most extreme conditions.



ROTTERDAM

WIRELESS CONTROL UNIT

Every ShoreTension® has its own wireless controller that works on solar energy. This enables the captain of the ship, the terminal operator and other parties to remotely monitor the tension on the mooring lines in real-time. Through SMS, all parties involved will be automatically notified if the safe working load (SWL) of a mooring line approaches the pre-established limits and if additional measures are required.

FOR ALMOST ANY SHIP IN VIRTUALLY ANY SITUATION

Depending on the ship size, weather conditions and local conditions, two to four ShoreTension® devices are necessary for the optimal operation of ShoreTension®. ShoreTension® has been developed for all loads and is adjustable, ensuring compatibility with all other mooring devices such as bollards, fairleads, etc. Furthermore, ShoreTension® is able to withstand extreme environmental conditions.



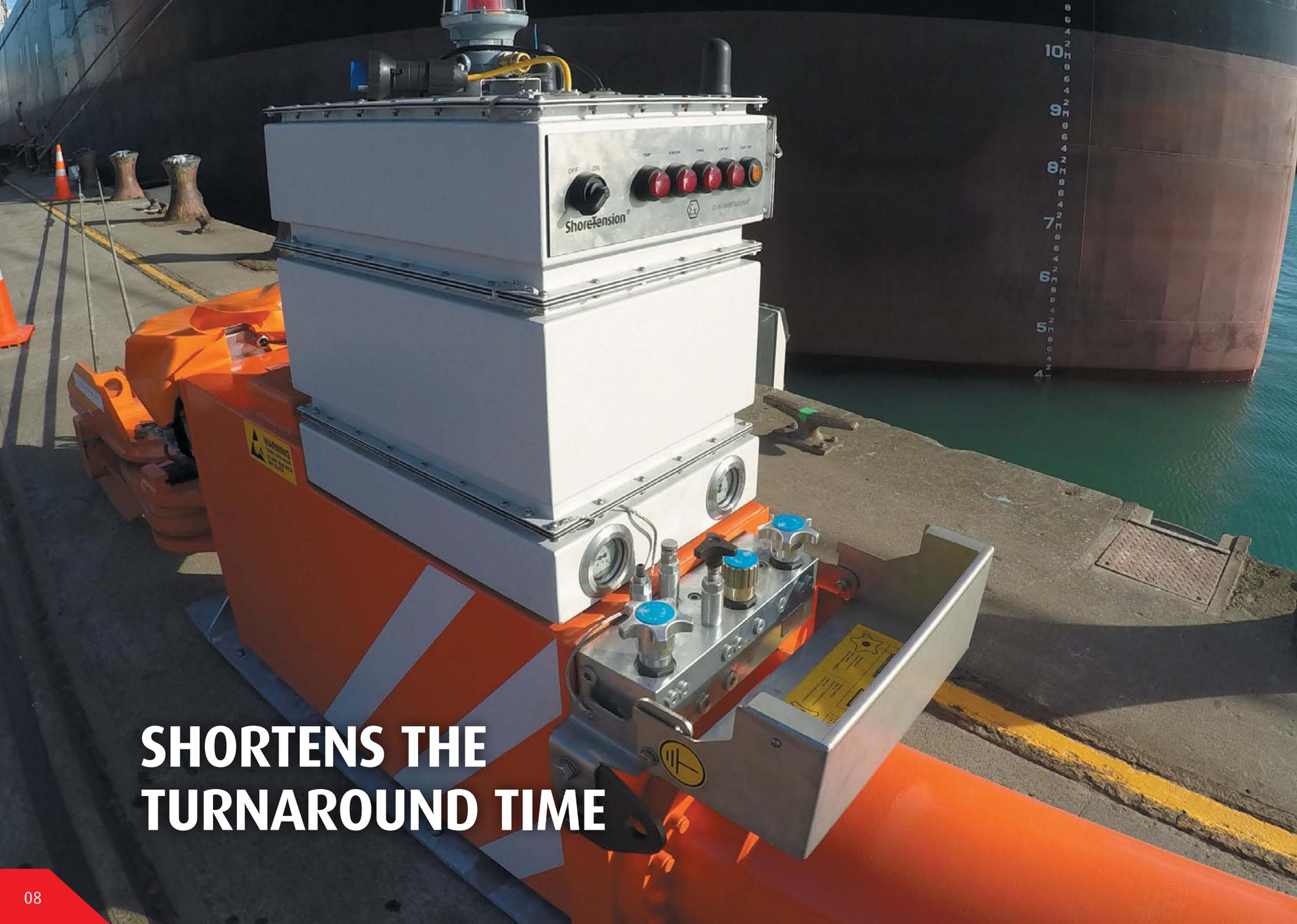
ShoreTension® has been certified by Lloyd's Register in London with a safe working load (SWL) up to 150 metric tons.

ShoreTension® can conveniently be used on a stand-alone basis horizontally on quay walls and aboard ships.



During heavy swell conditions, the fast inward and outward movements of a ShoreTension® system causes high temperatures - especially - in the inner core of the mooring lines.

With this innovative new snatch block we have created a friction free operation hence all systems are sold with this block.



**SHORTENS THE
TURNAROUND TIME**

ShoreTension®

DYNAMIC MOORING SYSTEM





**REDUCES
THE PROBLEM
OF SWELL**

INITIATORS

ShoreTension® has been developed by ShoreTension® Holding B.V. and its subsidiary ShoreTension® B.V., a joint venture between All Round Ports Services (APS), an affiliated company of the KRVE, and ECT Participations B.V. (ECT).

MORE INFORMATION

Please call or e-mail us for more information. If desired, we will give you a hands-on demonstration in Rotterdam. More details, including videos and pictures on the operation of ShoreTension®, are also available on our website www.shoretension.com.

ShoreTension®

Heijplaatweg 7
3089 JC Rotterdam
port number 2586

T 0031 88 11 33 090
M info@shoretension.com
W www.shoretension.com



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SPECIFICATIONS SHORETENSION® SYSTEM

Safe working load

- Up to 150 metric tons (1500 kN) in fully extended condition

Vessel motion reduction

- Up to 90% compared to conventional mooring systems

Application

- For all types of vessels

Wireless control

- Sensors register the loads in the ropes
Data is available for the ship's master, port and terminal operators
Data will be logged for review of berth
A warning system monitors when limits are exceeded
GPS data provide an overview of where warnings are issued in ports across the globe

Mooring lines

- Special mooring lines made with Dyneema®

Certified by Lloyd's Register for

- Pressure Equipment (PED)
- Lifting appliance (Heavy lifting)
- Use in explosive atmospheres (ATEX)



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ShoreTension®