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/// Alternative Maritime Power Systems

Daiei Hoffmans, International Sales Manager



/// Onshore Power Supply & Charging Systems

Reduction of Emissions in Ports



This presentation provides practical information about:

“Alternative Power Supply Systems”

for seagoing vessels as a measure to improve air quality in ports, port cities.

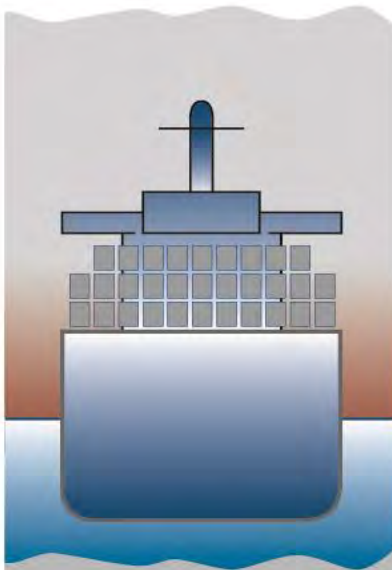


By reducing emissions of air pollution, noise and to a lesser extent carbon dioxide, by replacing onboard-generated power from diesel engines with electricity generated onshore power systems.

/// Onshore Power Supply & Charging Systems

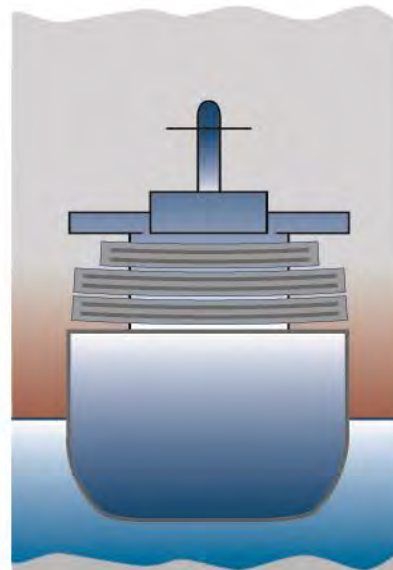
Various Solutions for ...

Container Vessels



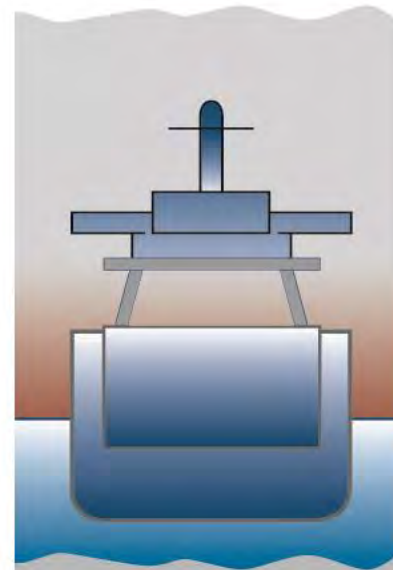
Onshore Power
Supply via
Cable Reel
Container System

Cruise Liner



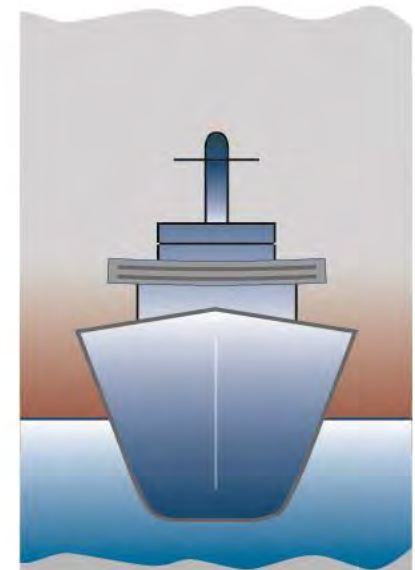
Onshore Power
Supply via
Cable Reel / Mobile
Carrier System

Electrical Ferries



Quick Charging
Connection via
Pantograph
System

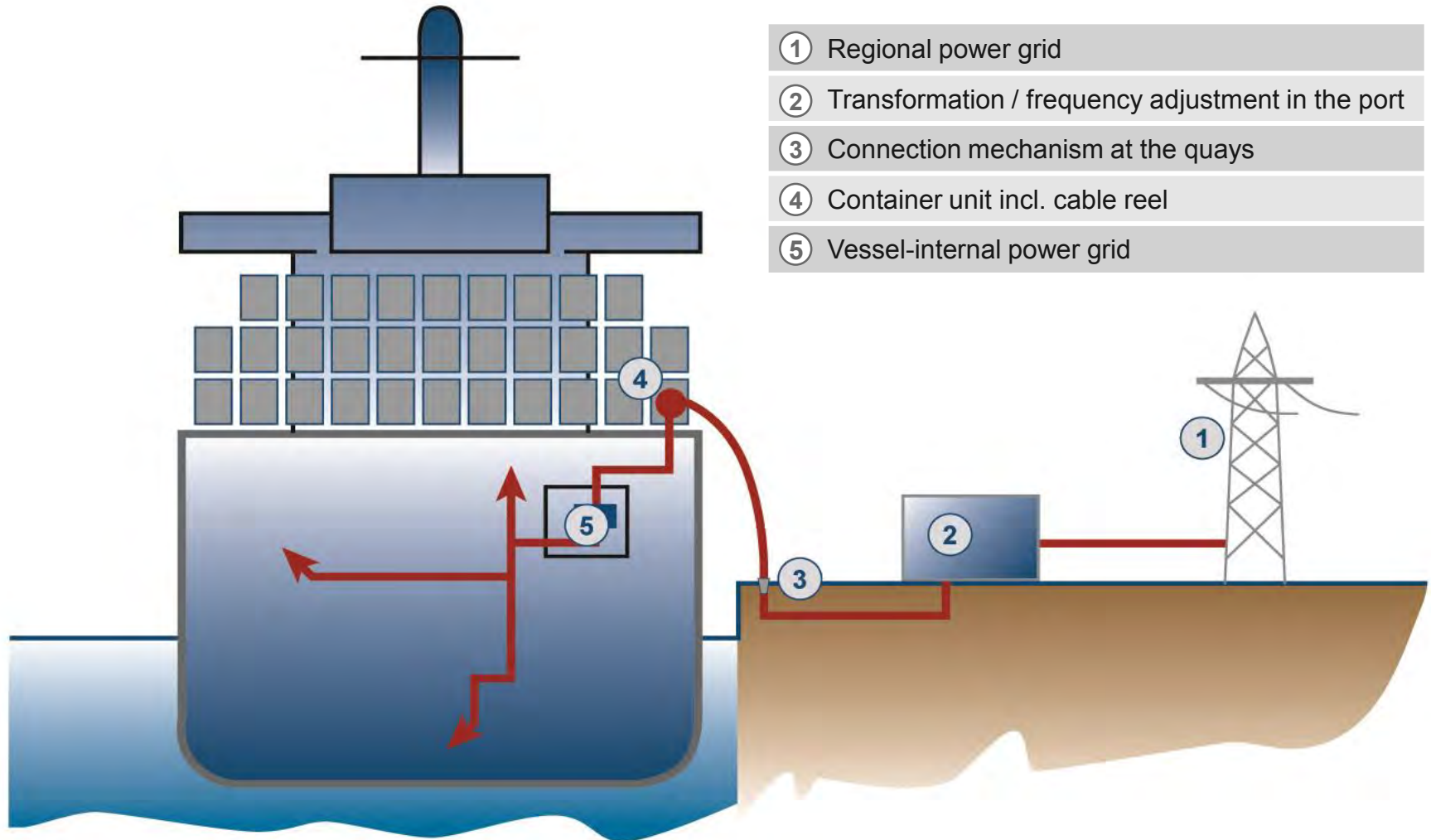
Yachts



Special
Applications
via Cable Reel
System

/// Onshore Power Supply for Container Vessels

Onshore Power Supply via Cable Reel Container Systems



/// Onshore Power Supply for Container Vessels

Onshore Power Supply via Cable Reel Container Systems

Onboard System



/// Onshore Power Supply for Container Vessels

Onshore Power Supply via Cable Reel Container Systems

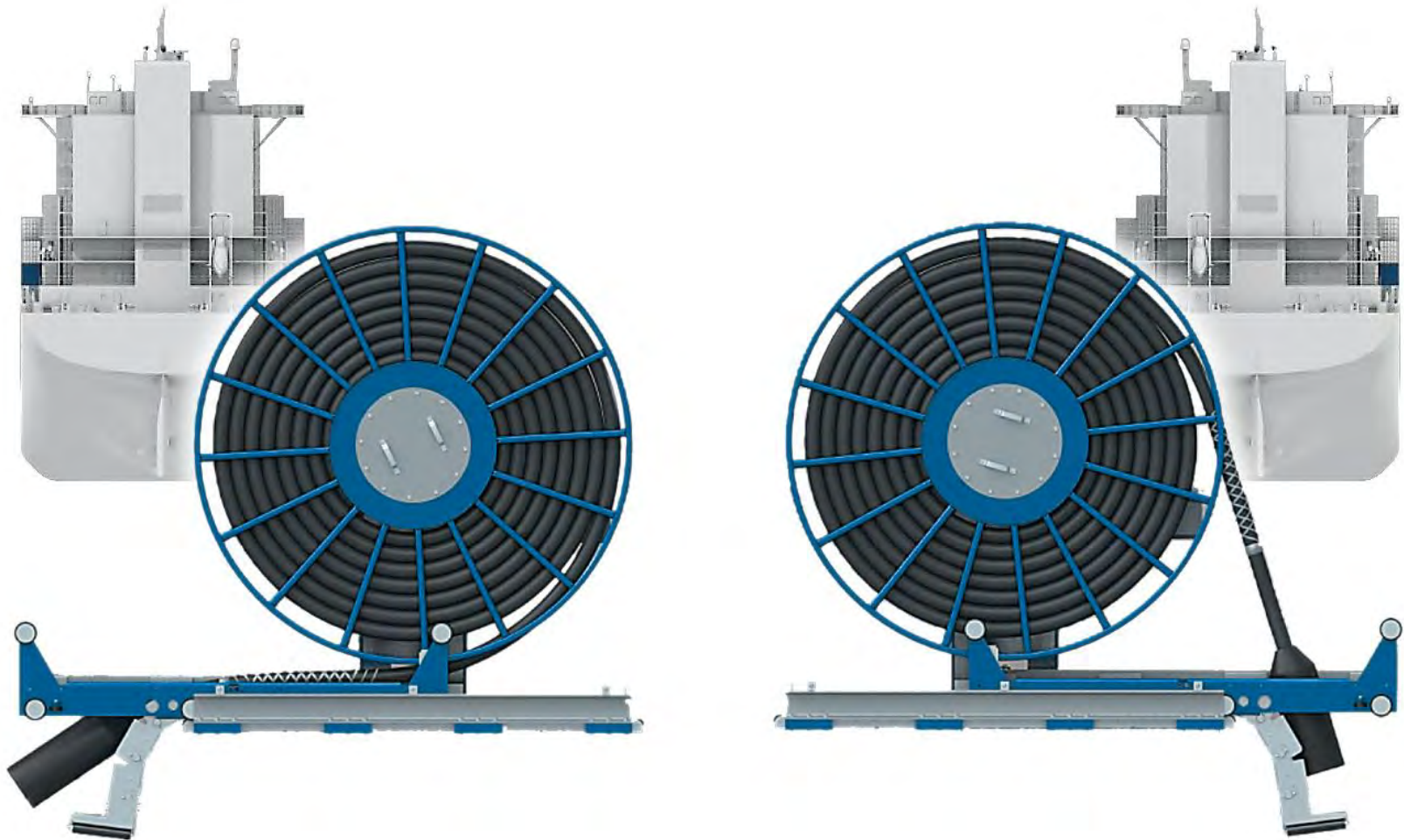


The feed of the onshore power supply for container vessels is realised for example by the installation of a 40 ft. HC-container in the bottom storage row.

The system consists of a spiral cable reel with slip ring assembly and fibre optic rotary connector incl. the drives for the reel and the extension system of the roller conveyer.

/// Onshore Power Supply for Container Vessels

Onshore Power Supply via Cable Reel Container Systems



/// Onshore Power Supply for Container Vessels

Onshore Power Supply via Cable Reel / Mobile Socket System

Onshore System



Combination of HC-container installation on board and mobile socket installation onshore.

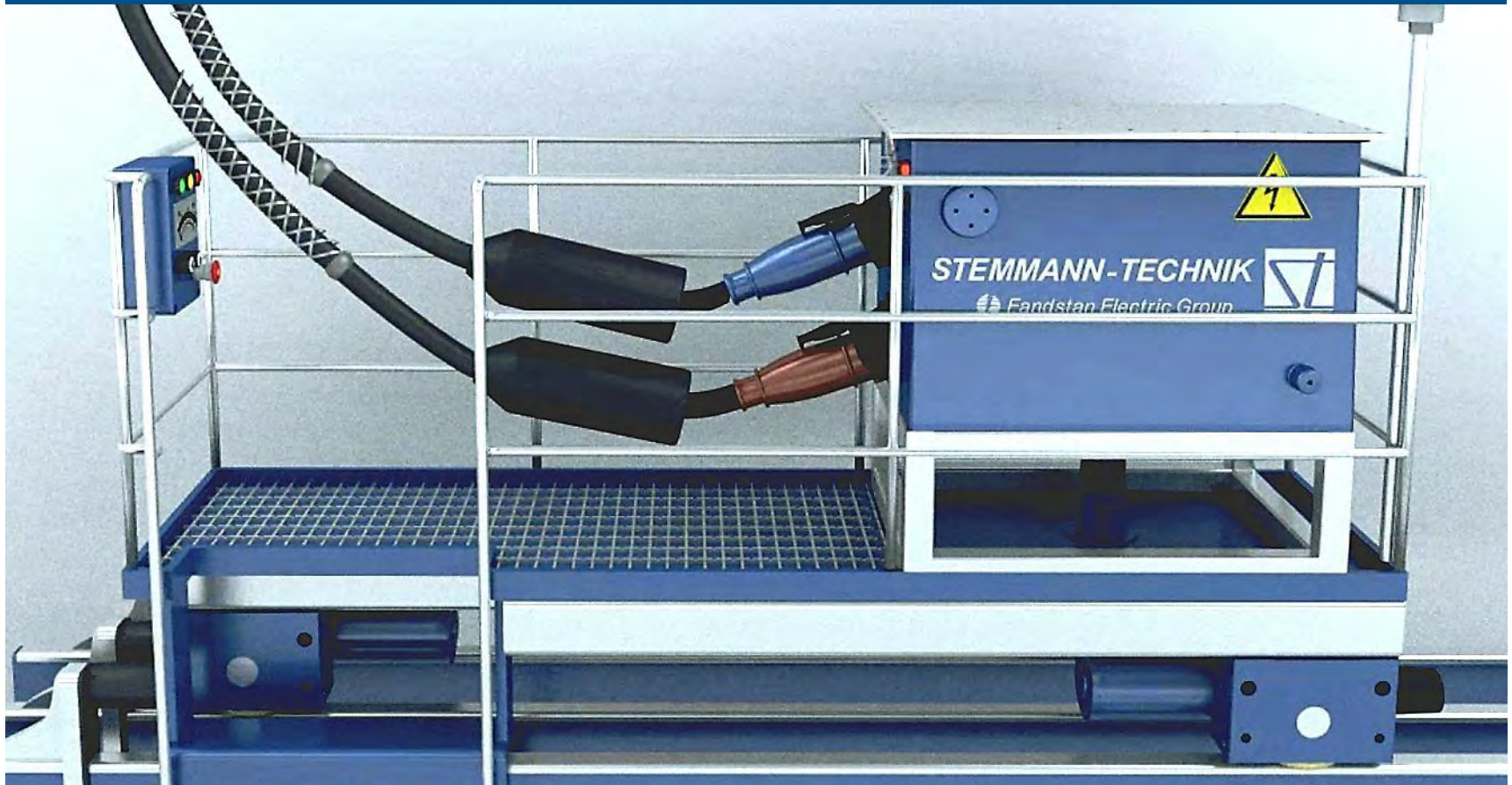
Flexible mounting heights depending on the local conditions.

Flexible traveling lengths depending on the local conditions.

/// Onshore Power Supply for Container Vessels

Onshore Power Supply via Mobile Socket System

Onshore System



/// Onshore Power Supply for Container Vessels

Container System Advantages



HC-container installation in the bottom storage row requires no special housing installation on board.

Installation/cable pay-off on port- or starboard side possible.

Constant tension on cable by torque motor.

Excess tension-coupling for protection from damage to the mechanical parts.

The operation is effected by means of a radio remote control.

Decades of experience in the construction and manufacturing of cable reels.

/// Onshore Power Supply for Cruise Liners

Container System via Mobile Carrier Systems

Onshore System



/// Onshore Power Supply for Cruise Liners

Vehicle in Action



/// Onshore Power Supply for Cruise Liners

History of the SAMP Hamburg Altona Project

Terminal Situation

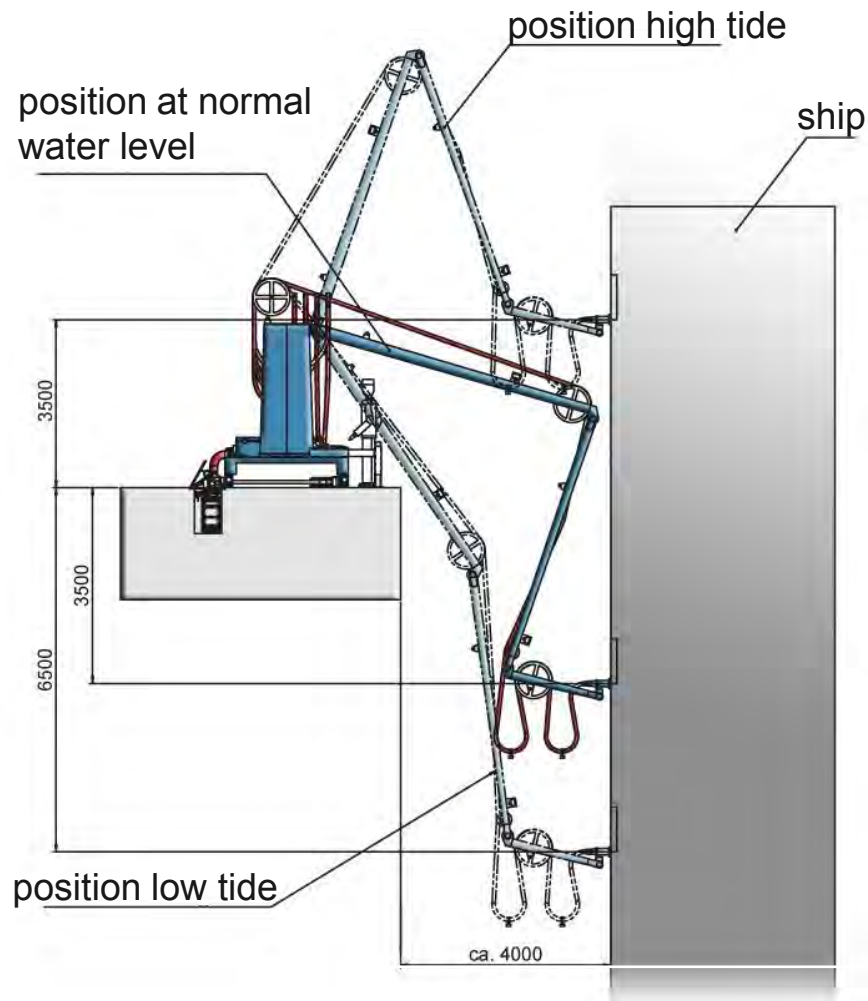


Ship's hatch / Control Cabinet



/// Onshore Power Supply for Cruise Liners

The Requirements



High tide, height difference hatch/quay: **3.5 m**

Low tide, height difference hatch/quay: **6.5 m**

Travel distance parallel to quay wall: **300 m**

Distance between ship and quay wall: **4 m**

Distance between SAMP-System
and quay wall: **approx. 2.5 m**

Distance between hatch and
socket: **approx. 3.5 m**

Hatch dimensions (h x w): **1.2 x 0.8 m**

Transmittable voltage: **12 MVA**

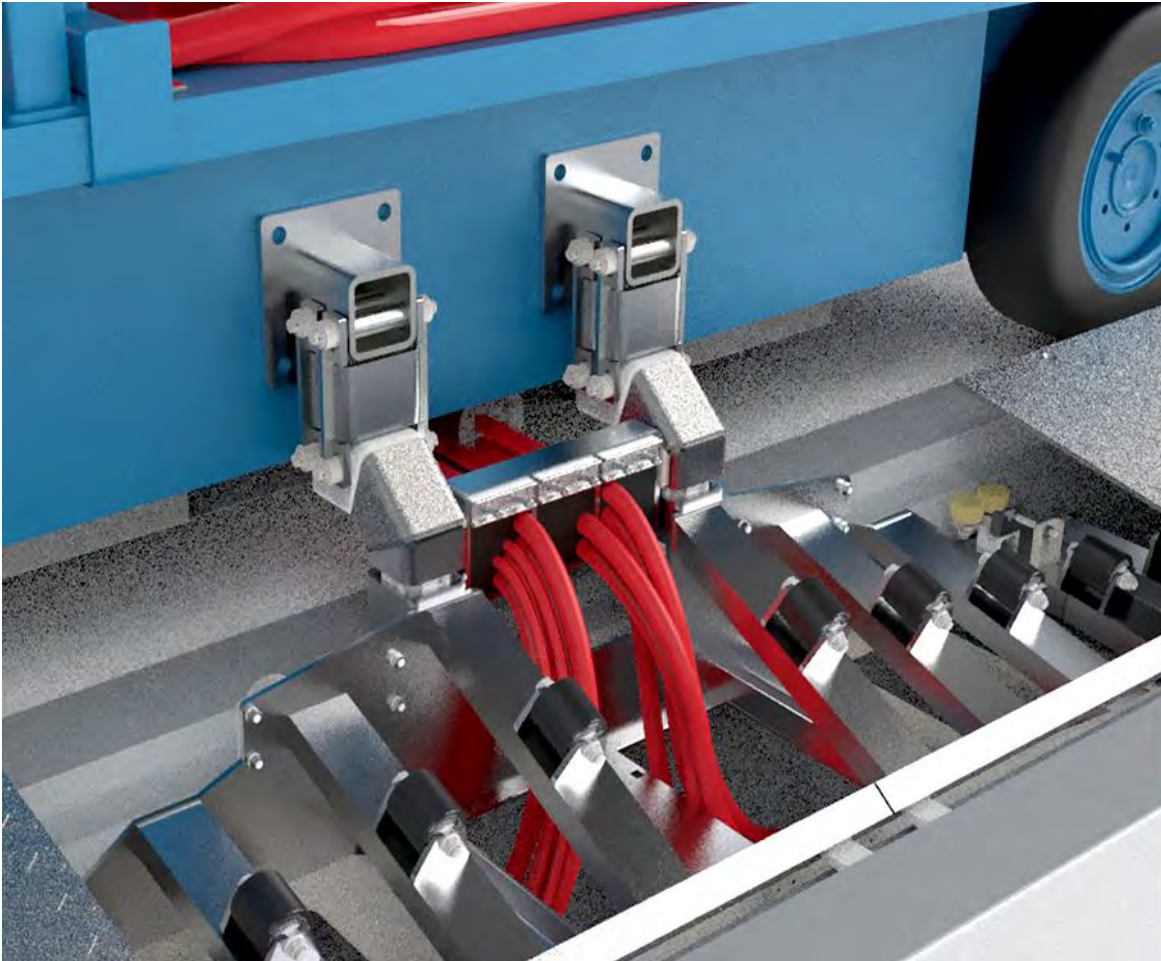
/// Onshore Power Supply for Cruise Liners

Port Side / Cable Duct / Energy Chain



/// Onshore Power Supply for Cruise Liners

Transfer Vehicle / Cover Lifting Device with Cable Guideway



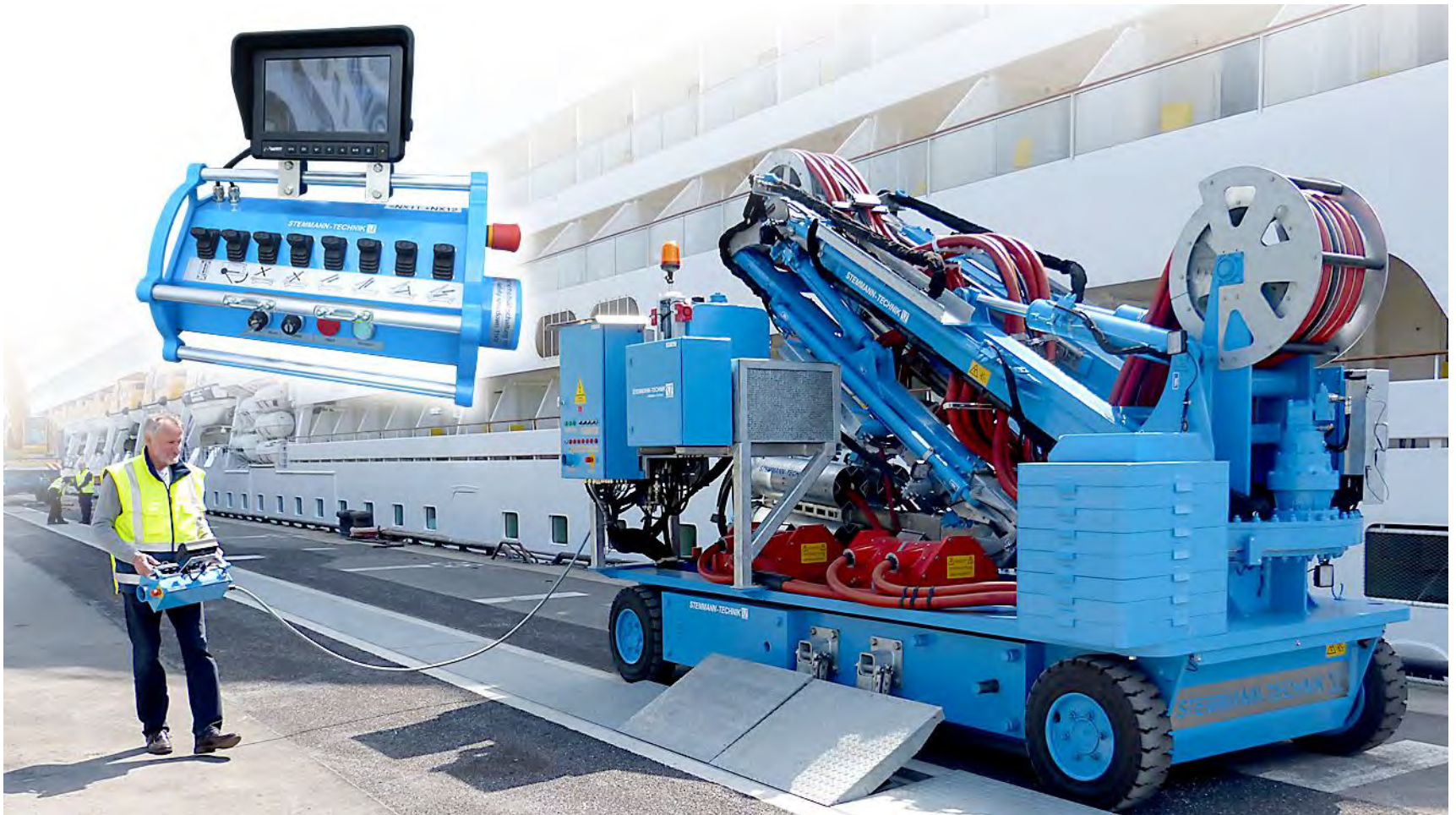
/// Onshore Power Supply for Cruise Liners

Telescopic Plug Holder System



/// Onshore Power Supply for Cruise Liners

Control Panel



/// Onshore Power Supply for Cruise Liners

Story of the SAMP Shanghai Project

Terminal Situation

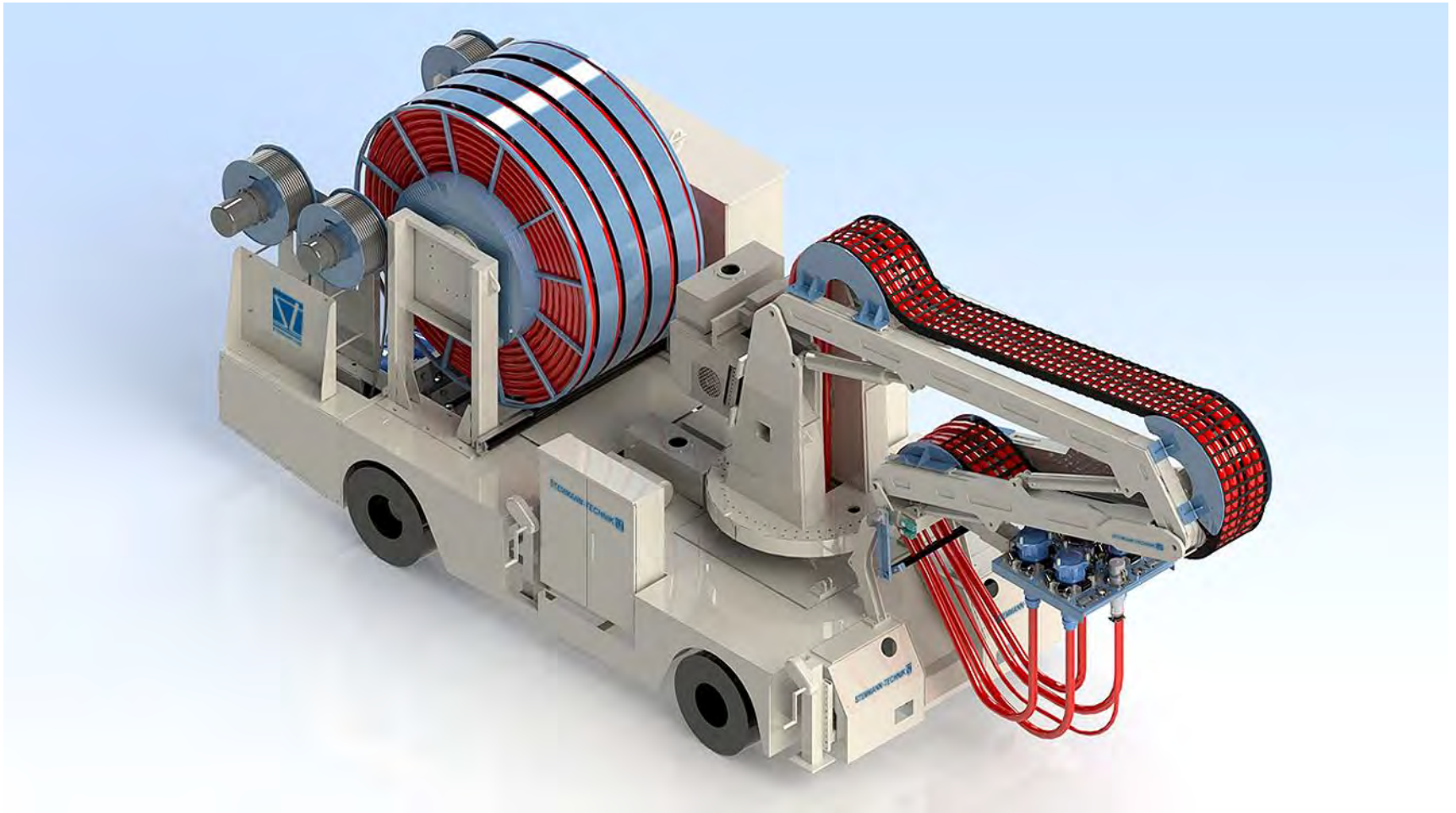


Ship's hatch / Control Cabinet



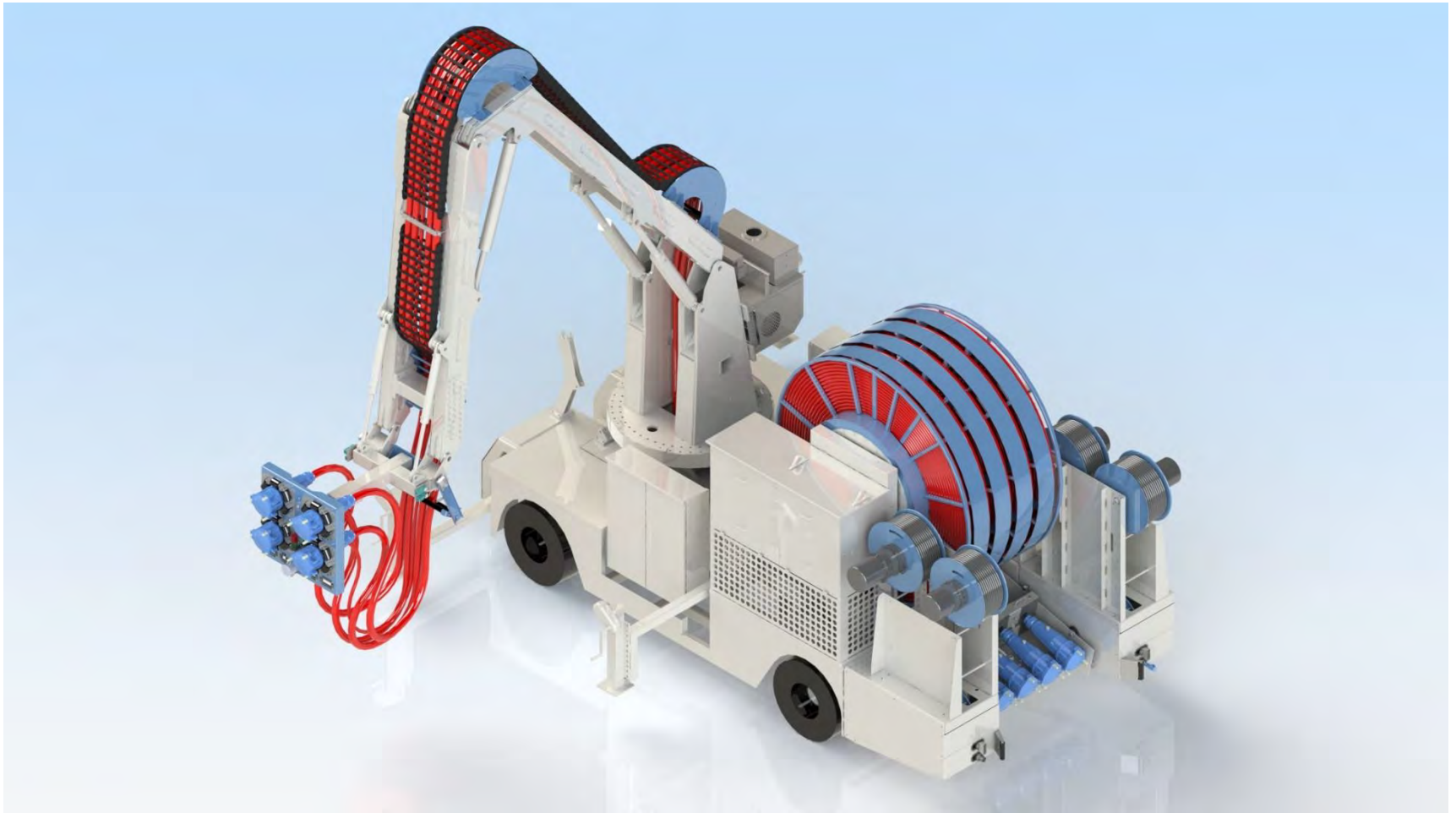
/// Onshore Power Supply for Cruise Liners

Story of the SAMP Shanghai Project



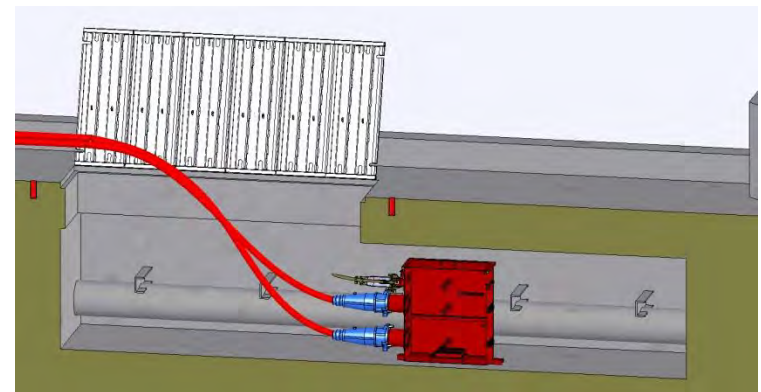
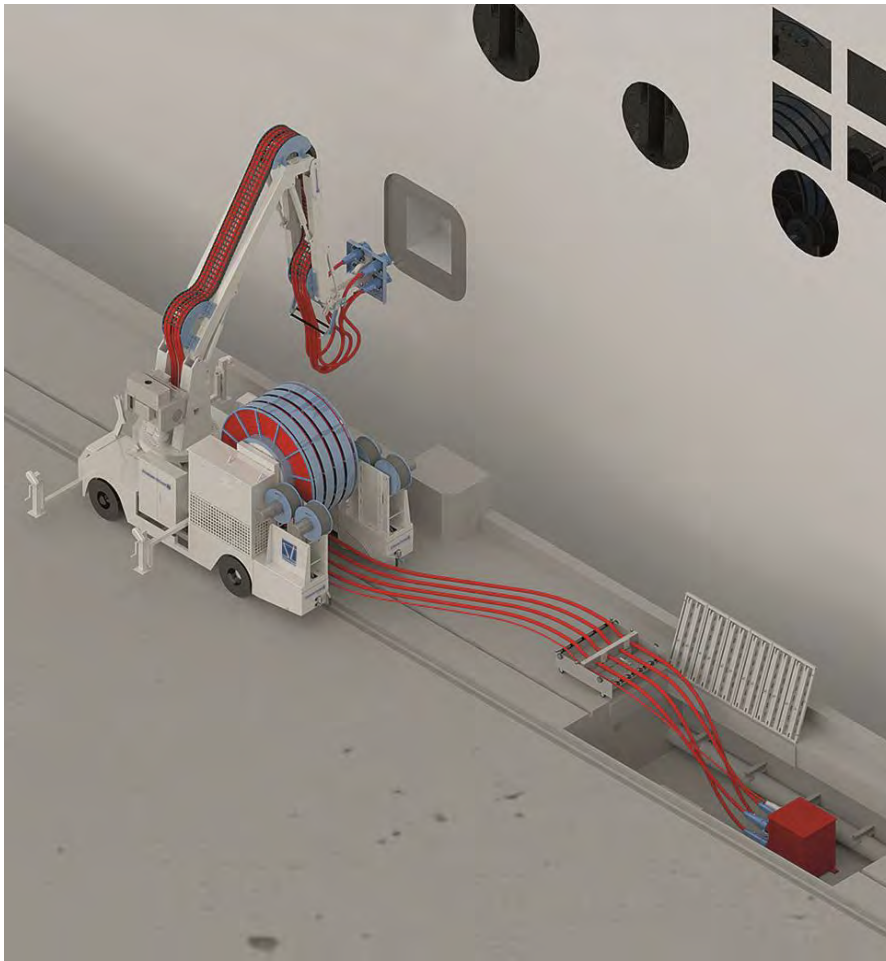
/// Onshore Power Supply for Cruise Liners

Story of the SAMP Shanghai Project



/// Onshore Power Supply for Cruise Liners

Story of the SAMP Shanghai Project



/// Onshore Power Supply for Ferries

Quick Charging Connection via Pantograph Systems



/// Onshore Power Supply for Ferries

Quick Charging Connection via Pantograph Systems

System especially for ferries that cover short distances

120 cars / 360 passengers

Fully recharge in 10 minutes

Passenger service since 2015

400 kW to cruise at 10 knots

Replacement of 2,000-hp diesel engine

Saving 264,000 gallons of fuel/year

Saving nearly 3,000 tons of CO₂/year

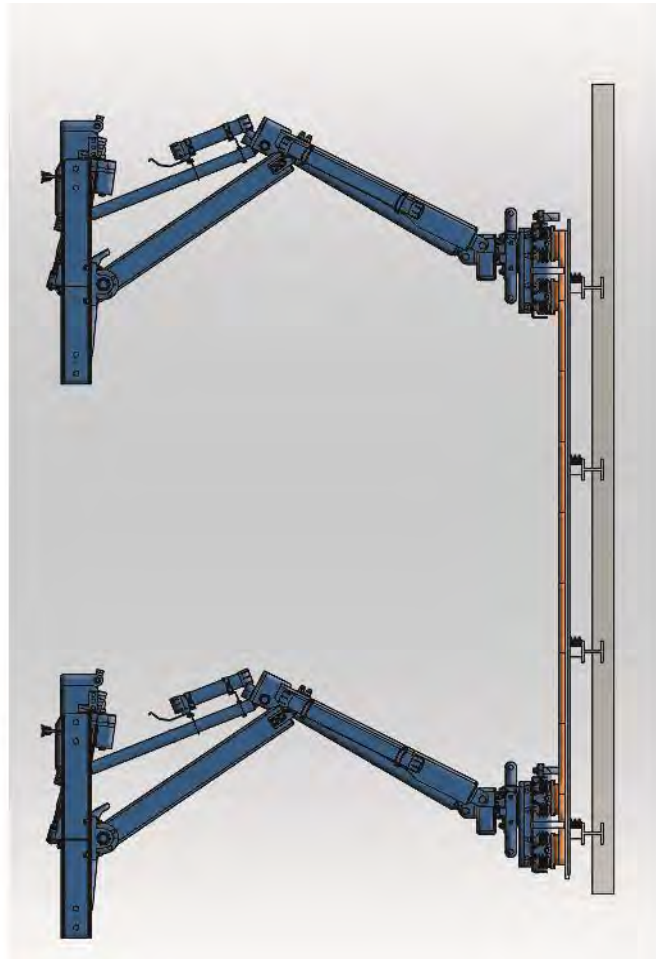
Powered by 800 kW battery



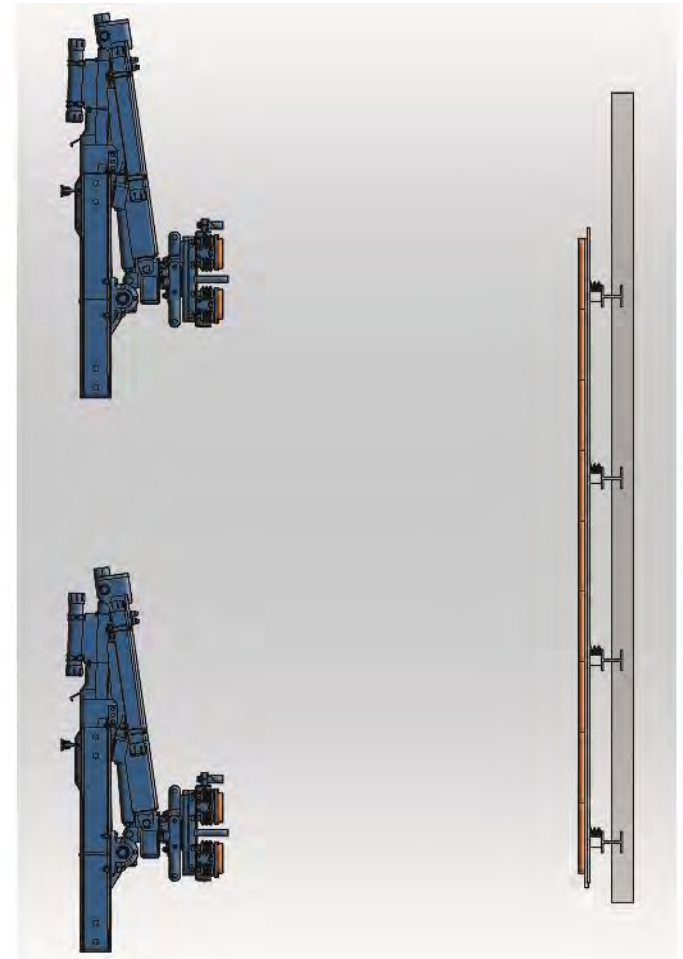
/// Onshore Power Supply for Ferries

Pantograph Systems (planning phase)

low tide



high tide



/// Onshore Power Supply for Ferries

Quick Charging Connection via Pantograph Systems

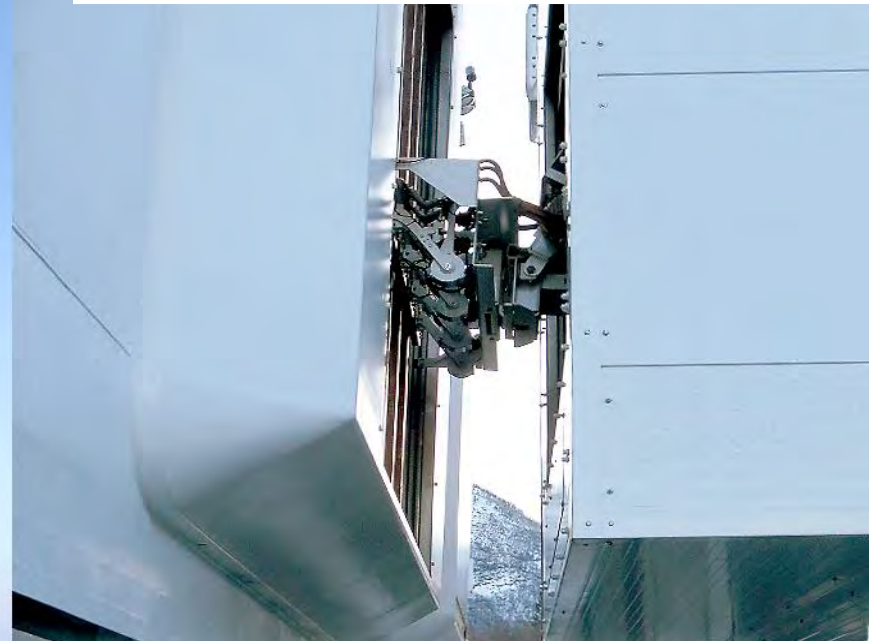
System especially for ferries that cover short distances

Fully automated

Connecting/disconnecting
time only 7 seconds

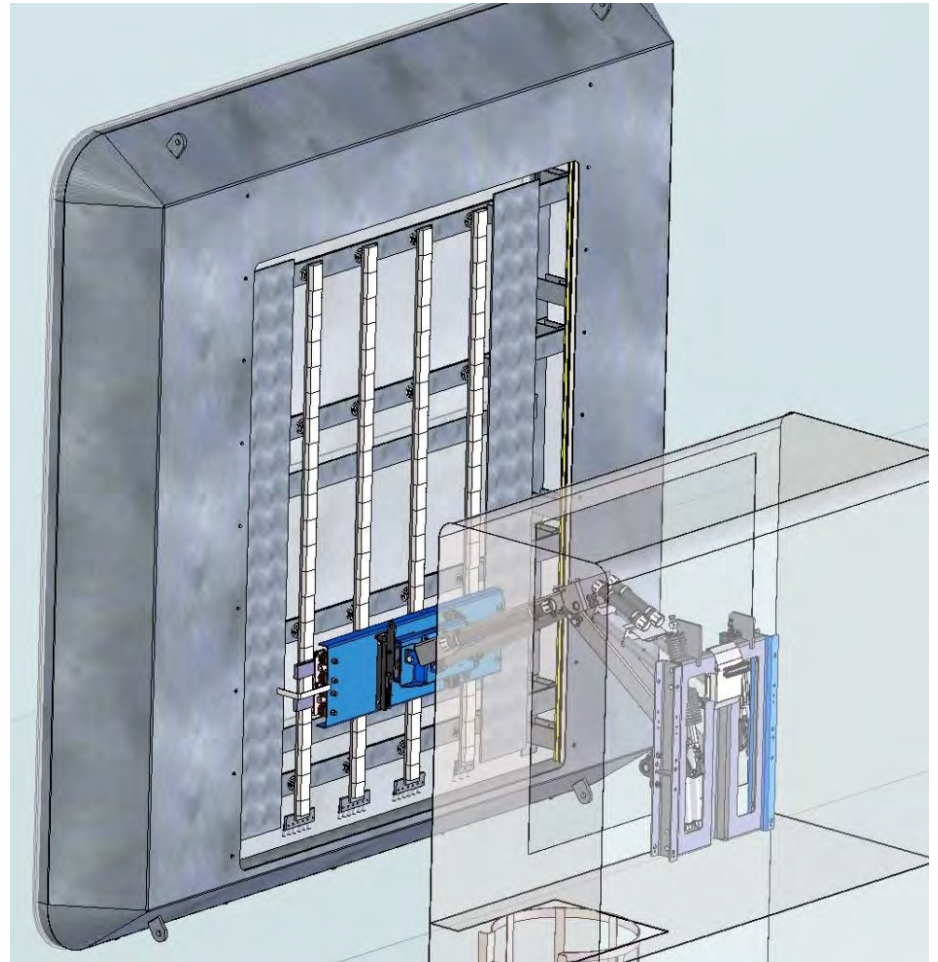
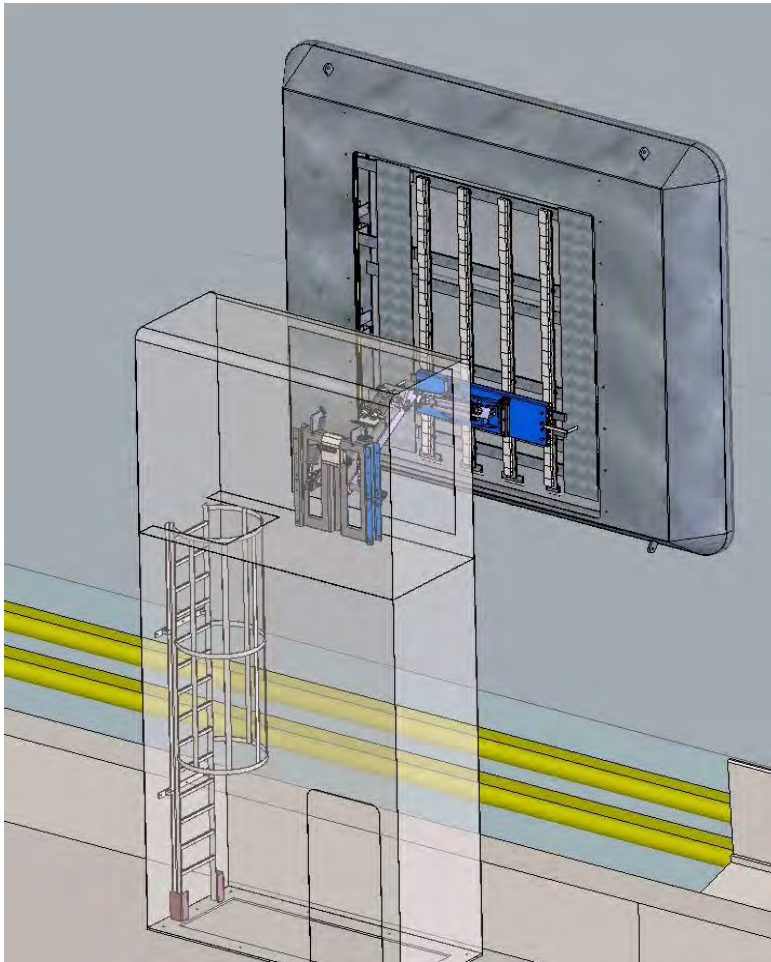
Compensates the ferry
movement while docking

System secured into
attractive housing



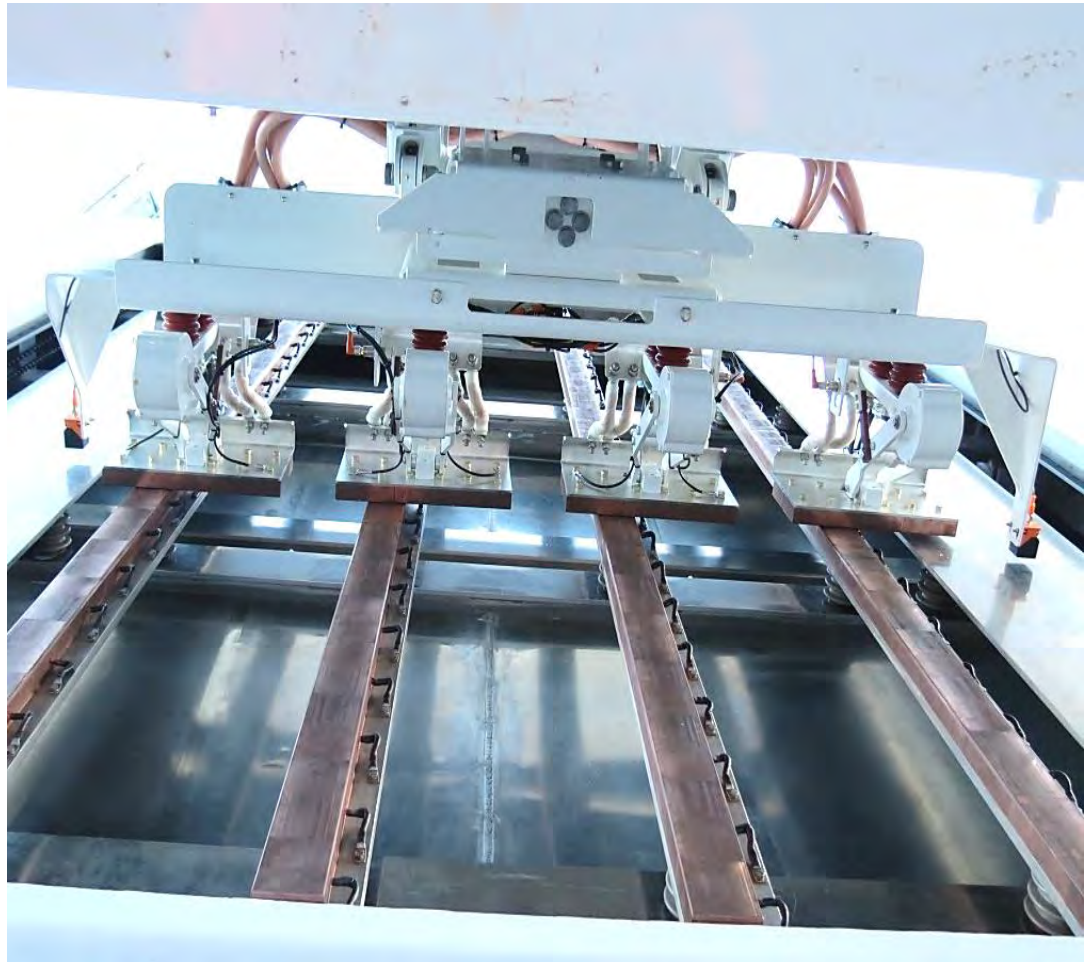
/// Onshore Power Supply for Ferries

Pantograph Systems (planning phase)



/// Onshore Power Supply for Ferries

Pantograph Systems (Real Situation)



/// Onshore Power Supply for RoRo Vessel or Offshore Vessel

Shore Systems





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/// Thank You for Your Attention

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