LETHE

shore power solutions

AMPCon40-MS

containerized system for HVSC shore power connection

>> variable positioning over the entire width of the vessel <<

YOUR CONNECTION TO THE FUTURE

New HVSC Mid Ship version

Amended and new regulations and requirements valid both today and in the future call for reduced emissions by vessels while docked at the berth. A simple and cost-efficient possibility to comply with the guidelines is the use of shore connection systems. These require a failsafe flexible solution to bridge the vessel/shore interface. With the aim of addressing this issue we developed the AMPCon40-MS containerized on-shore power supply system, drawing on over ten years of experience that we have in this field to provide a variable and economically viable 6.6 kV (HVSC) system.
The AMPCon40-MS on-shore power supply system that is now available, is the result of the consistent development and improvement as well as the optimization of all individual components. In this context, increased attention was paid to requirements from the market and to their systematic implementation. One example of this is the option to position the unit in the midship area as well as on port or starboard side.
This variability provides for compatibility with majority of the vessels in the fleet. In addition, these features are supported by a robust cable guiding system with low maintenance requirements, which can be used by the crewmembers to securely route a minimum of 64m of cable over the side of the vessel to the shore.
The optimized control system, which also ensures the tensioning function, in combination with the entirety of the components, allows for a "HV Shore Connection System (HVSC)" produced in accordance with international IEC 80005-1 standards.
By gaining the company **ABB** as a system partner, who has overall responsibility for the system, if requested by the customer, we are able to offer a complete package of installation material, junction boxes, etc., to fulfil any adaptations to the specific vessels.

The Containerized solution

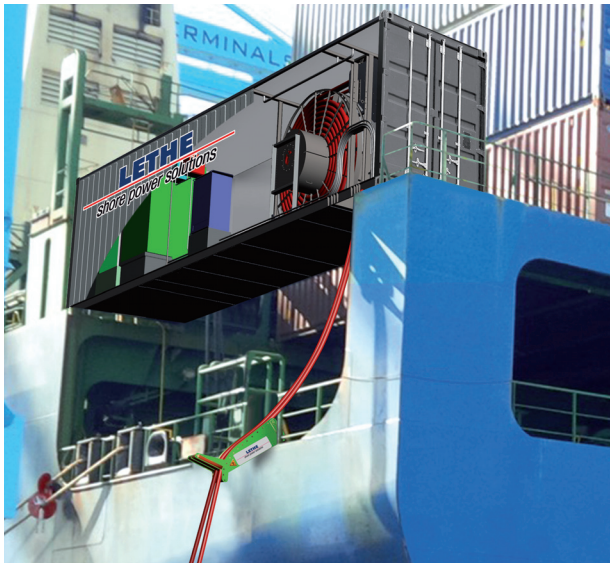
The Containerized solution is to have the components mentioned above, fitted inside a standardized container. This container can be placed on the ship either in accommodation area, or mooring deck aft. As the whole system is placed inside a container, and therefore completely modular, it can either remain in a fixed position for longer periods or it can be moved e.g. according to shipping routes on other ships. Due to restricted space availability onboard ships it is not always possible to mount a fixed installation on the ship as a position is wanted. To work around these restrictions, LETHE has developed an innovative way of supplying power to the ship. With this solution the power supply system is mounted into one 40' HQ container.

The AMPCon40 container family is a so called All-in-One Concept, consisting following components:

- heavy-duty cable reel
- HV Receiving SWB
- special flexible power cables
- monitoring & control unit
- HV Connectors
- special slip ring assembly
- electric Drive system with Gear Box
- lifting bow or telescopic roller guide (optional)
- Mid Ship – Port – Starboard position
- With or without step down transformer
- Bottom power cable outlet or side outlet
- Cable roller guiding system Pt to Stb or just over board
  roller guiding with Pivot on Deck mounted

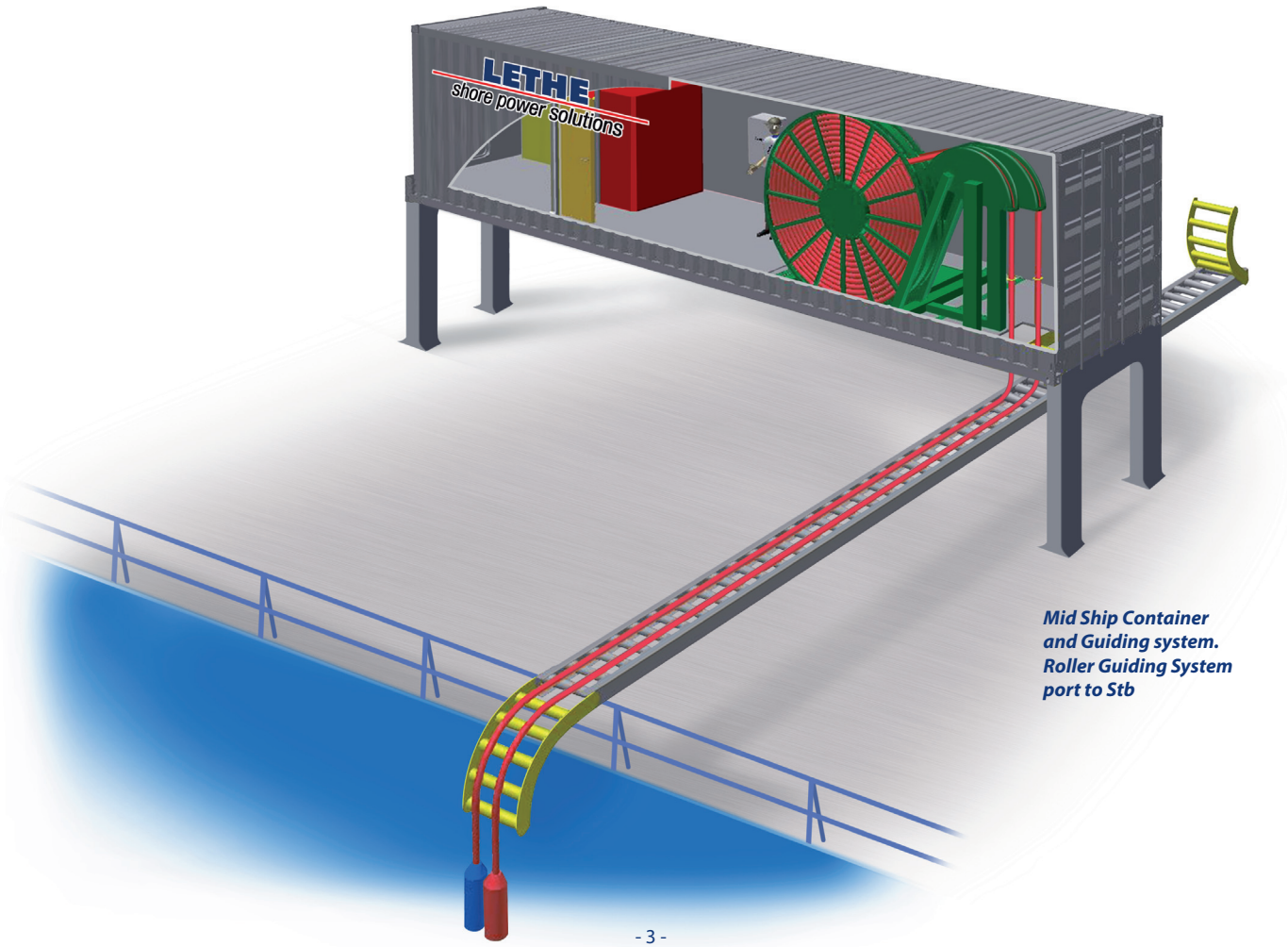
With this solution the customer retains the possibility to change the position of the container or to move the system easily from one ship

Variability of the AMPCon40 system



AMPCon40-MS with power cable outlet through the bottom. Cable guiding boom on board the ship

AMPCon40-PT, Side power cable outlet with roller guiding system (out-let left and right)



Mid Ship Container and Guiding system. Roller Guiding System port to Stb

Single Cable Reel System

Our **AMPCon System** offers several Cable Reel solutions according the customers requirements. All our suggestions are based on IEC/ISO/IEEE 80005-1 standard.
We follow the customer to install either on Port or on Stb side the single Cable Reel with sufficient shore power cable length. This system can be offered as: mobile, fixed, housed, etc.

This cable reel system consist of:

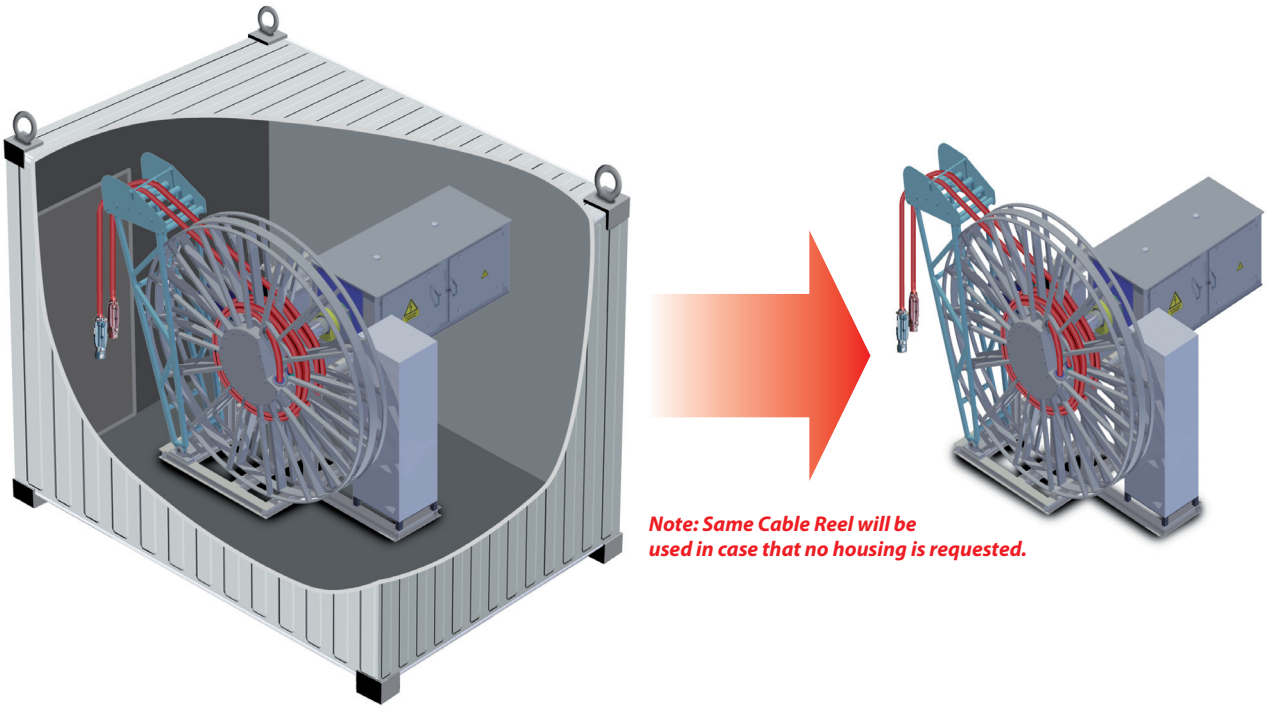
- Heavy duty drums
- Special flexible power cables (length to be given by customer)
- Cable management system
- HV Slip Ring System
- Electric Drive Motor and Gearbox
- Heavy duty chain drive system
- Optical Fibre accumulator
- Retractable cable guiding system
- Auto tensioning system

Telescope roller guiding system or lifting Bow system is in accordance to customers request, same as housing with all inclusive as Heating, Air drying, Control system, etc. The a.m. Cable Reel system is basically same as fitted inside the containerized version. HV Receiving SWB is fitted with 1 in- and 1 output panel which feeds the AMP incoming panel at Main SWB in SWB room of the vessel, with shore power. The Pt / Stb Cable Reel is wired to the HV Receiving SWB in accommodation area. The Pt and Stb Cable Reels are wired to the income panels of HV Receiving SWB in accommodation area.

Following components have to be considered for installation in accommodation area:

- Cable Reel with and without housing, mobile or fixed mounted
- HV - Receiving SWB
- Cable management system
- Control unit
- HV and LV SJB and FJB (junction boxes)
- Measuring, Monitoring & Control Unit – HV Connectors

AMPCon-MCRXXH, with housing



Note: Same Cable Reel will be used in case that no housing is requested.

AMPCon-System family summery

- Transformer, Junction Boxes and ships installation Equipped for use in all climate zones, thanks to complete
- Container insulation, heating and air drying to avoid corrosion
- Robust cable guiding with low maintenance requirements
- Standard max. cable length of 64m, ease and secure handling
- Manufactured according to international standards (IEC/ISO/IEEE/80005-1)
- Overall system responsibility by cooperation with ABB

AA) Requirements of California/ US

Extract from the new regu lations by the State of California FINAL RE GU LATION ORDER AIR BORNE TOXIC CONTROL MEASURE FOR AUXILIA RY DIESEL ENGINES OPERATED ON OCEAN- GOING VESSELS AT-BERTH IN A CALIFORNIA PORT Section 93118.3, title 17, chap ter 1, subchap ter 7.5, CaliforniaCode of Regulations (CCR: Within the scope of CARB 93118.3 (T17/ C1/ SC7.5) requirements:

(A) January, 2014 Requirements:

1. At least 50 percent of the fleet's visits to the port shall meet the onboard auxiliary diesel engine operational time limits in subsec tion (d)(1)(D); and

2. The fleet's onboard auxiliary-diesel- engine power generation while docked at the berth shall be reducedby at least 50 percent from the fleet's baseline powergeneration.
(B) 2017 Requirements is 70%
(C) 2020 Requirements is 80%

LETHE

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