Wärtsilä SAMCon
High Voltage Shore Connection System
Increasing pressures on ship operators and port authorities to minimise the impact of air pollution and noise emissions by way of meeting strict environmental regulations are now a worldwide concern.

One particular solution for reducing emissions during port docking is the use of high voltage on-shore power supply systems (HVSC) also variously known as cold ironing, alternative marine power, shore supply or shore power. As such, shore power covers provision of shoreside electrical power to a vessel while its main and auxiliary engines are turned off. As a result this solution will enable the vessel to meet upcoming strict clean air regulations (for example, California, USA) when berthed at terminals, without generating harmful noise and air pollutants caused by active diesel engines.

Since 2004, Wärtsilä has been engaged in developing a series of modular high voltage shore connection systems (HVSC), called SAMCon. The system design is essentially based on meeting port needs while also conforming to ICE/ISO/IEEE 80005-1 requirements. A configuration typically comprises key components such as cable reel, a medium voltage switchboard and a control and monitoring facility inclusive of an interface between ship and shore. A complete assembly can either be installed separately aboard a vessel or containerised for siting at a specific onboard location.

**Container Solution**

For retrofitting of existing vessels Wärtsilä provides container solutions as well as single components for installation on board.

- Cable reel
- Cable reel control box
- Monitoring and control cabinet
- Medium voltage switchboard
- Transformer
- 2nd reel for connection to ship.

Due to the use of 40’ High Cube standard containers, a flexible location on board is possible. On request or depending on the project, a solution with 20’ container is also available.

For low voltage applications we offer a solution with step-down transformers. The components are either installed in different locations on board or combined in a container.

The following equipment can be installed in a container:

- Cable reel
- Cable reel control box
- Monitoring and control cabinet
- Medium voltage switchboard
- Transformer
- 2nd reel for connection to ship.
**Single Component Solution**

The SAMCon system consists of several modules:

**Cable Reel, Including**
- Medium voltage cable including fibre optic, control cable and protective earth
- Plug, including power, control and fibre optic cable contacts for shore connection according to standards required by individual ports
- Cable management system
- Electric drive for the cable reel
- Usable cable length up to 80 m, customized solutions available.

**Cable Reel Control Box**
- For control and monitoring of reel and auxiliaries.

**Monitoring and Control Cabinet**
- Interface for safety interlocks between shore and ship installation
- Communication between ship and shore, scope of information to be exchanged according to individual port specifications
- Interface to ship automation system.

**Solution for Vessels with Shaft Generator System**
For vessels equipped with a Wärtsilä shaft generator system we offer a retrofit using the main components of the installed shaft generator. Instead of feeding the system by the shaft generator we extend the system with a shore connection system.

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**Container Features**
- Up to 7.2 MVA transferable power at 6600 V/60 Hz and 45 °C
- Usable on port and starboard side
- Container including CSC certificate
- Design according to IEC 80005-1
- Safe operation area
- Electric cable reel drive including tension control
- Shore interface designed for ports of West Coast California (others on request)
- Maintenance friendly technology.

**System Engineering**
For retrofit and also for new building projects Wärtsilä provides the following services:
- Feasibility analysis
- Onboard inspection
- Engineering work/conversion planning
- Conversion cost budgeting.
Wärtsilä is a global leader in complete lifecycle power solutions for the marine and energy markets. By emphasising technological innovation and total efficiency, Wärtsilä maximises the environmental and economic performance of the vessels and power plants of its customers.

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