Alternative Maritime Power project

Terasaki AMP system
AMP provides the ultimate environmental protection!
AMPは究極の環境対策です！

Eco-friendly considerations have been an important issue for the last 15 years and global awareness of this issue has rapidly grown. One of the main polluting sources stems from ships that use heavy oil to go between harbors and terminals.

為什麼 AMP 現在？なぜ今AMPなのか？

An average ship burns about 7 tons of bunker fuel in a few days in a harbor. The combustion of this low-grade petroleum pollutes air about 50 times more than that of diesel oil used by diesel trucks, the least eco-friendly vehicle type running on freeways. (1)[1] The environmental survey data has been quoted from the POLA’s survey report.

If AMP is Applied

The LA port alone produces 31.4 tons of nitrogen oxides [NOx] daily. In contrast, 500,000 passenger cars daily emit about 0.5 ton of nitrous oxides. (2)[1]

Why AMP now?
なぜAMPなのか？

The Port of Los Angeles (POLA) has launched into the AMP project on a large scale and some other harbors are now reviewing the implementation of this project.

What is AMP?
AMPとは？

AMP project is intended to decrease pollutants discharged from ships on the berth and protect the environment of the harbor by stopping the onboard power generator engines, boiler, and other heat sources and alternatively supplying the necessary electric power from the shore side. This project is also known as the "cold ironing" project because all the heat sources are stopped.

AMP計画とは、停泊時に船内発電機エンジンやボイラー等の熱源を停止し、陸上側より必要な量の電力を供給することにより、船側から排出される環境負荷物質を減少させ、港の環境を守るプロジェクトです。すべての熱源を停止させることから、別名:"Cold ironing”計画とも呼ばれています。AMP計画はアメリカ・ロサンゼルス港（POLA）が本格的に取組を開始し、他の港も導入検討が進んでいます。 (1,2)[1] The Port of Los Angeles (POLA)
Terasaki AMP System

The AMP project is now under way in various harbors in the world. Environmental protection is a global issue: every port, especially in the west coast of US, is requested to satisfy stringent environmental requirements.

As the ultimate environmental protection solution, the AMP is increasingly adopted by many seaports and ships. Terasaki held discussions with the POLA and finally developed an AMP system, which completely conforms to the POLA’s specification. Several ships having our AMP system installed are now in service.
We offer a packaged engineering service including the cable Management system and the wharf side connection box.

We also offer a retrofit service for installing the AMP system on ships in service.

Installation of AMP system on ships is service.

We offer a packaged engineering service including the cable Management system and the wharf side connection box.

We also offer a retrofit service for installing the AMP system on ships in service.

The power supply can be changed quickly.

Our high-voltage switchgear assures safety and high reliability by its mechanical interlocking.

Cable reel can be operated safely and easily.

Shore based-power supply

Floating platform

11kV AC / 450V AC

50Hz

On request

Cable Management System and high voltage plug/socket are product of Cavotec Group.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Standard</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vessel types</td>
<td>Container, Cruise ship,</td>
<td>On request</td>
</tr>
<tr>
<td></td>
<td>Tanker, PCG, LNG carrier,</td>
<td>On request</td>
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<tr>
<td></td>
<td>Ore carrier, Ferry</td>
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<tr>
<td>AMP power supply system</td>
<td>Ship based power supply (Cable reel is installed on the ship)</td>
<td>Shore based-power supply / Floating platform</td>
</tr>
<tr>
<td>Shore side voltage</td>
<td>6.6kV AC</td>
<td>11kV AC / 450V AC</td>
</tr>
<tr>
<td>Shore side frequency</td>
<td>60Hz</td>
<td>50Hz</td>
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<tr>
<td>Ship side voltage</td>
<td>6.6kV AC or 450V AC</td>
<td>On request</td>
</tr>
<tr>
<td>Ship side frequency</td>
<td>50Hz</td>
<td></td>
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<tr>
<td>Power changing method</td>
<td>Blackout-free</td>
<td></td>
</tr>
<tr>
<td>Ship needed power</td>
<td>3.5MW/4.15MW/7MW/8.32MW</td>
<td>On request</td>
</tr>
</tbody>
</table>

Notes

1. If your onboard power supply is of low voltage, a transformer is required.
2. This illustration shows the ship-based power supply system with the cable reel installed on the ship.
3. The cable reel can be mounted in a ship's service bay.
4. This is a retractable type of cable reel installed on the ship.

System configuration

Ampholyte AMP System : Integration of Engineering and Supply
トータルエンジニアリング・トータルサプライでお応えします