Product Description
L3 supplies Electric Auxiliary Propulsion (EAP) systems for naval combatant and auxiliary ship applications. We provide both low-voltage (450 VAC to 690 VAC) and medium-voltage (4,160 VAC to 6,600 VAC) EAP systems in power ranges from .5 to 5 MW.

These EAP system designs are based on the technology developed by L3 Maritime Systems for installation on U.S. Navy DDG-51 Flight IIA-class ships and can be customized to specific requirements for each application. These systems utilize militarized commercial drive technologies to reduce cost and eliminate risk and can use either induction or permanent magnet motors in the design.

Together with other L3 divisions, we are able to offer a complete naval power distribution package, including switchboards, load centers, transformers, frequency converters, bus transfer switches, power and lighting panels, and point-of-use power conversion systems.

ELECTRIC AUXILIARY PROPULSION SYSTEM BENEFITS
There are numerous benefits to using EAP systems. Navies around the world are beginning to recognize these benefits and are increasingly pursuing EAP systems for new surface ships. These benefits include:

- Reduced operating fuel consumption
- Increased on-station time without refueling
- Reduced gas turbine or diesel main propulsion maintenance
- Reduced “coking” on diesel engines during low-speed operation
- Utilization of shaft generation for ship service electrical loads
- “Boost Mode” capability provides additional ship speed when used in conjunction with the main propulsion system
- Potential bidirectional operation to provide additional power to the ship’s electrical bus when not in propulsion mode

L3 can provide support to optimize the design of an EAP system to meet your specific ship and concept of operation.
MAJOR SYSTEM COMPONENTS

VARIABLE SPEED DRIVE (VSD)

The current EAP system design utilizes Active Front End (AFE) drive components that provide a number of benefits, including:

- Elimination of phase-shifting transformers
- Improved harmonic performance
- Reduced Electromagnetic Interference (EMI)
- Power Take In/Power Take Out (PTI/PTO) bidirectional capability

This approach to the drive design takes advantage of commercial drive electronics that are ruggedized to meet naval shock and vibration requirements. Repackaging these commercial components allows for customization to meet the specific space constraints for each application. These EAP systems can be cooled by seawater, freshwater or chilled water.

MOTORS

The design of this system allows for the use of either Induction Motors (IMs) or Permanent Magnet Motors (PMMs). The selection of the appropriate motor is driven by customer requirements. The motor choice does not significantly impact the motor drive design, reducing development costs. L3 can support the selection of the correct motor for each application.

L3 can provide motors that connect to the main reduction gear or motors that are in line with propulsion shaft.

CURRENT APPLICATIONS

L3 Maritime Systems has begun production to support the U.S. Navy’s installation of the first two systems on board the DDG-51 Flight