Power and Propulsion Systems
JEUMONT Electric, an entity of the Altawest group focusing on efficient power generation and conversion (propulsion)

JEUMONT Electric is an industrial leader operating in the field of large electrical rotating machines as a manufacturer and service provider for motors and generators.

International experience and proven know-how
With the extensive and unequalled experience of a century-old manufacturer, Jeumont Electric has supplied reliable products and services to energy, transportation, marine and industrial markets throughout the world.

JEUMONT Electric has thus gained the confidence of the French and foreign Navies. It has numerous references on surface vessels and submarines in such countries as Australia, Canada, Chile, France, Malaysia, Pakistan, Portugal, South Africa, Spain, Sweden and India.

Key features of propulsion systems for surface vessels
Permanent Magnet propulsion motors designed for surface shipping vessels combine the air cooled stator frames of conventional synchronous machines with radial flux permanent magnet rotor technology.

The stators of the Permanent Magnet Machines feature a multiple phase star winding concept whereby each star winding is powered through its own dedicated modular converter which is connected to the ship’s electricity network.
This arrangement offers the advantage of increased availability due to the possibility of operating with only a part of the converters and stator windings.
The permanent magnet propulsion system selected for the European multi-mission frigate programme

The synchronous permanent magnet motors designed by JEUMONT Electric have been selected for the hybrid propulsion architecture of the FREMM frigates programme. Comparative analyses of various motor families have demonstrated the significant advantages of permanent magnet technology in terms of volume, high efficiency and acoustic signatures.

Advanced submarine propulsion solutions

For the specific and highly demanding domain of submarine propulsion, JEUMONT Electric also offers the so-called MAGTRONIC system featuring a soft water-cooled permanent magnet propulsion motor.

System overview

The propulsion system consists of a multiphase AC synchronous motor controlled by multiple IGBT drive units.

Each motor phase is supplied through an H bridge IGBT converter ensuring a high level of fault tolerance.

The electronic converter modules are built in such a way as to maximise accessibility and maintainability, and lend themselves to various installation options.

This excellent accessibility to the electronic components is essential for monitoring and maintenance purposes. A complete converter module can thus be readily replaced on board without stopping the propulsion motor.

The necessary normal and fall-back control modes are implemented.

The advantages of MAGTRONIC

• Extremely low structure and air-borne noise signature
• Greater power density
• High system availability and redundancy of power electronics
Full range of marine equipment addressing naval and commercial electrical power systems for technology intensive vessels.

JEUMONT Electric can design and manufacture a complete array of propulsion motor technologies from 1MW and upwards, direct drive or high speed.
- Wound synchronous rotor
- Induction motors for main propulsion or thrusters
- Permanent magnet synchronous

Power generation is available through a full range of AC synchronous generators up to 80 MVA, driven by steam or gas turbines or diesel engines. This range also encompasses specific generators for DC networks in naval applications.

A continuous Research and Development effort to introduce new products

JEUMONT Electric has continuously invested in R&D to optimize the compactness, reliability and adaptability of its products to the marine environment.

Developments in power electronics and rare earth permanent magnets have notably led to an increasing interest in permanent magnet machines for a great number of applications.
To date, these permanent magnet systems constitute an appropriate technology to power dense, high efficiency and high discretion variable speed drives.

For the same reason, the High Temperature Superconducting technology is also being investigated for future use in particularly demanding applications in terms of compactness and lightness at high torques.
Global responsibility for energy propulsion systems.
JEUMONT Electric is the dedicated partner of navies and shipyards for marine electrical systems from feasibility studies to sea trials throughout ship service lifetime.

JEUMONT Electric can ensure the global responsibility for:

Design of the complete electrical system
- Main and auxiliary propulsion
- Power generation
- Power system integration

Manufacturing
- Propulsion motors
- Propulsion power converters
- Power generators

Services
- Combined tests
- Technical assistance
- Training
- Dependability studies
- Spare parts
- Maintenance and repairs
- Offset contributions

Total Quality
JEUMONT Electric has many quality certifications such as ISO 9001, AQAP 110 and RCC-M (Nuclear).

The company has also been audited and qualified by a number of international customers such as: EDF (Power generation), MAN (Diesel engine manufacturer), General Electric (Power generation services), AREVA (Nuclear engineering), Flow Serve (Pump manufacturer) and Fairbanks Morse Engine (Engine manufacturer).

In its Total Quality Management program, JEUMONT Electric devotes a great deal of care to safety and the environment. JEUMONT Electric is currently holder of the corresponding certifications: ISO 14001 and OHSAS 18001.