ABB is a leading supplier of generators for all marine and industrial applications. We have been manufacturing generators for more than 120 years and have extensive application experience with tens of thousands of installations all over the world. ABB offers reliable and efficient power generation with worldwide support.

**MCI insulation system**

ABB uses the MICADUR® Compact Industry (MCI) insulation system, which is based on the vacuum pressure impregnation (VPI) method. The VPI and curing of the completely wound and connected stator winding with a specially formulated epoxy resin ensures a sealed and homogenous insulation system, resulting in high dielectric strength, excellent heat transfer and minimization of hazardous internal partial discharges.

ABB has been using the MCI system for more than 30 years. In that time it has been used on tens of thousands of our larger machines, which are operating successfully all over the world. Thermal lifetime tests performed on the MCI system also show that its endurance substantially exceeds IEC and IEEE requirements.

MCI insulated windings require very little maintenance. Usually it is sufficient to ensure that the cooling ability of the winding is not reduced by the ingress of moisture or dirt during periods when the generator is not operating.
The VPI process features:

– high vacuum cycle – removes air and moisture from the voids and pores of the insulation
– highly stable epoxy resin – ensures superior protection under the most difficult environmental conditions (against lubricants, diesel oil, moisture, common solvents, chemically aggressive gases, abrasive dust, tropical climate etc.)
– high pressure cycle – forces the resin into even the smallest pores
– oven curing – after the VPI process has been completed, stators and rotors are cured in an oven at high temperature. This produces very strong and stable insulation, exhibiting high mechanical and electrical strength. This is especially important in order to resist inadvertent high stresses from out-of-phase synchronization, transients and short circuits.

Even the largest wound stators and rotors are impregnated as complete units. This ensures that both the insulation and the mechanical properties of the windings are strong – which means that they can withstand prime mover induced vibrations and the mechanical stresses caused by transients such as short circuits.