

Technical note

High voltage generators for diesel and gas engines

Stator and windings

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.



The stator core is built of stacked, high-grade, low-loss laminated electric sheet steel, insulated on both sides with a heat-resistant inorganic coating. Radial cooling ducts ensure uniform and effective cooling of the stator.

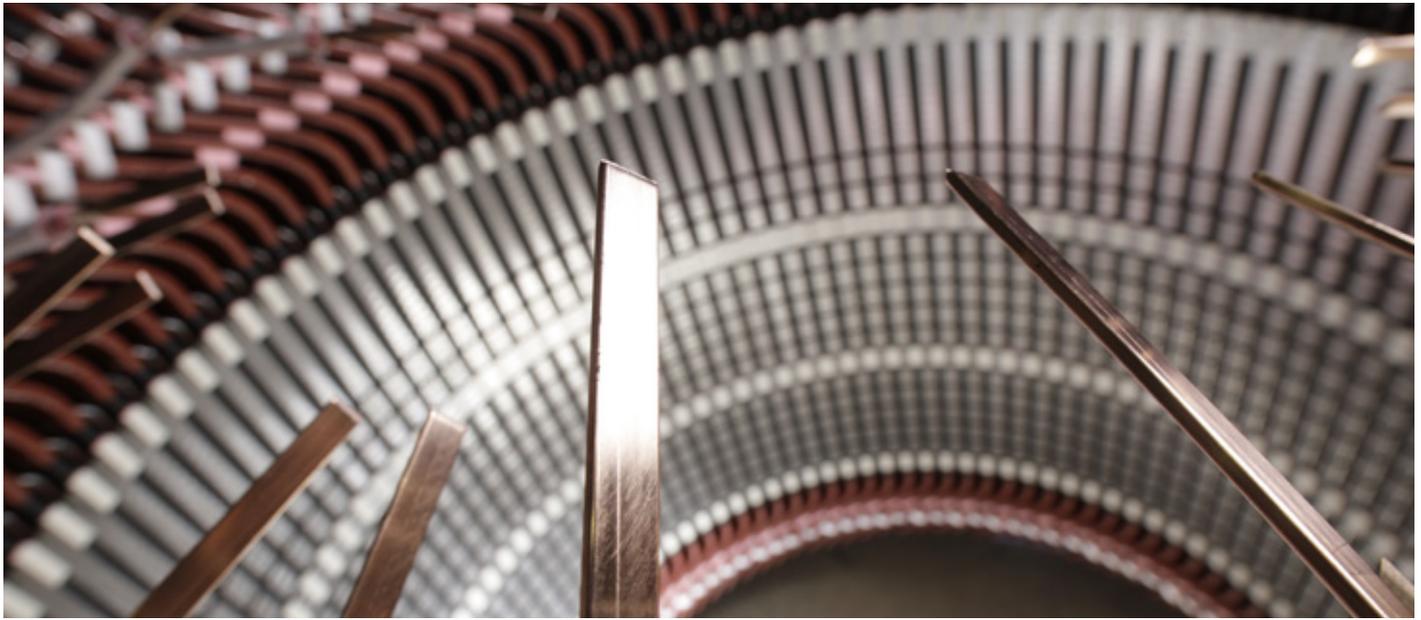
Stator winding and insulation classes

Medium and high voltage windings up to 15 000 V are made of form wound rectangular copper wire insulated with multiple layers of glass fiber reinforced mica tape. A variable number of layers of insulating tape can be applied to the copper coil depending on the dielectric barrier defined by the voltage output. All materials used including the vacuum pressure impregnation resin exceed thermal class F (155°C) requirements. Class F temperature rise is standard, with Class B rise also available.

After insertion into the slots, the coils are firmly held in place by means of soft wedges and surge ropes at the coil heads prior to vacuum pressure impregnation. The completed process assures long and trouble-free service.



Form wound coils are used for medium or high voltage stators (also available for low voltage stators). High voltage coils include a semiconducting layer to decrease the electrical field at the slot surface.



Rotor and exciter windings

Rotor and exciter windings are made to match the insulation class of the stator. This ensures high reliability and a long service life even with asymmetric loads and exceptional conditions.

The rotor windings are made of pre-formed enameled rectangular copper wire. Proper supports between adjacent windings are used to ensure stability up to the rated over-speed. The windings are vacuum pressure impregnated.

Exciter windings are made of enameled copper wire. Proper glass fiber supports are used in the exciter rotor to ensure stability up to the rated overspeed. The windings are also vacuum pressure impregnated.



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