



## Generator Service Solutions

# APLETEC

## Restoration of Water Box Tightness

### Reduce Life-Cycle Costs of Generators

As a global leader in power generation, GE offers innovative technologies that provide clean and efficient power solutions.

Tightness deterioration of one or more stator winding water boxes can be fixed today without bar replacement by water box sealing. The APLETEC process provides the solution.

### Background

Leaks from stator winding water boxes are often detected during an inspection or overhaul.

This failure mode can lead to damage of the insulation and an eventual stator earth fault, with a requirement to replace the defective bars. This is a complex operation, costly in time, manpower, and spare parts not necessarily available on time.



Water box being processed



Water box being processed

### Solution

The APLETEC repair solution restores the tightness of water boxes without requiring any bar disassembly, only disconnection of the hydraulic hoses.

First, the inner side of the water box undergoes chemical cleaning to ensure that surfaces are prepared for the resin bond.

Resin is injected into the water box, penetrating the interstices by capillary action. Circulation of clean air in the winding prevents blockage of the tubes by the resin. A curing cycle completes the process. The treatment is confirmed by an endoscopic examination and a pressure test.



Water box treated

### Benefits

- Avoid replacing air gap or slot bottom stator bar.
- Extend the generator lifetime without onerous maintenance operations.
- Repair defective bars during planned outages.

### Maintenance Impact

- Process can be carried out during a B or C overhaul.
- Planning depends on the configuration of the hydraulic circuit and number of water boxes to be repaired (by experience, number can vary from one water box to 100% of stator winding water boxes).

### Components Concerned

- Single-path water-cooled stator bar.

### Our References\*

- Full-scale testing on 600 MW stator bars in laboratory.
- Restoration of stator winding water box tightness on nuclear generators.
- Process applied on 300 MW to 600 MW generators operating in coal power plants.

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\*Process applicability depends on water box configuration and accessibility

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fact sheet