



# NATIONAL ELECTRIC COIL®

**Our Experience Generates Results!**

800 King Avenue, Columbus, Ohio 43212 USA • 3330 East 14th Street, Brownsville, Texas 78521 USA

## NECCOPress™ Coils

*Ideal for Stator Rewinds for Machines  
Used In Utility & Industrial Applications*

Even under the harshest operating conditions, the NECCOPress™ insulation system stand up to high thermal and mechanical stresses, making it an ideal choice for windings for high-voltage, utility- and industrial-grade generators and motors. National Electric Coil employs B-staged technology with the latest high voltage coil design practices to achieve high dielectric strengths and low machine losses, without compromising reliability.

### Applications

This resin-rich B-staged, class F-rated insulation system is available in three winding application types for high-voltage, form-wound, diamond coil stators up to 13.8 kV:

#### NECCOPress™ I

- The coils are hot pressed, then fully cured in a stator dummy core constructed of precision-cut tooling that accurately reflects the mechanical and electrical clearances during installation. The entire dielectric structure becomes homogeneous with the prescribed degree of rigidity after the bake cycle.

#### NECCOPress™ II

- The coils are hot pressed, then fully cured in a precision stator dummy core reflecting the mechanical and electrical clearances during installation.
- The application of a fully cured, but flexible mica tape on the coil knuckles and leads allows more flexibility and deflection during installation.

#### NECCOPress™ III

- This alternative provides a NECCOPress™ winding with flexible coil ends. Only the cell portions of the coils are hot pressed and factory cured. The thermosetting epoxy loaded tapes on the coil ends are not cured in the factory.
- After winding the stator, the thermosetting epoxy-loaded tapes on the coil end-turns and leads must be cured by oven baking, high current or heaters prior to service operation. Because the end turns are not cured until after installation, maximum flexibility is attained for this insulation system.



*Top two photos show rewinds in progress using coils made with the NECCOPress™ Insulation system.*



*In production order: Above Copper wire drawn and rolled to specified size. Left: Application of strand insulation to conductor. Bottom Left: Robotic application of turn tape and subsequent looping of turns. Bottom Right: Forming of coil geometries.*



Small bore? Ask about NEC's NECCOFlex™ coils for those applications in which extreme flexibility during installation is required.



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## Coil System Components

- ✓ NEMA MW 1000 rated copper magnet wire drawn to specifications.
- ✓ Strand insulation options: Double Dacron glass, polyesterimide coating, covered by a PET backed mica tape or dedicated turn tape.
- ✓ Groundwall constructed from B-staged mica tapes impregnated with an electrical grade, modified thermosetting epoxy resin, onto which a glass fiber backing material is applied so as to provide mechanical strength during processing. The coil cell portion is hot-pressed to form a homogeneous, void free dielectric.
- ✓ Corona suppression system consisting paint or tapes, depending on customer preference or specification requirements.
- ✓ Standard armor tape: polyester fabric impregnated with a thermosetting epoxy-resin that remains flexible after curing. Dry armor tapes are available for customers who wish to saturate the coil ends after installation.

## Testing and Inspection

- ✓ All coils (100%) are checked for mechanical and electrical clearances in a stator dummy core constructed from precision-cut tooling produced from computer-generated drawings.
- ✓ The slot fit of each coil (100%) is checked with calibrated micrometers and gauges.
- ✓ Standard tests are: strand-to-strand dielectric test, surge comparison test, Power Factor Tip-Up test, and an AC High Potential test. Coils meet all standard international specifications. Additional requirements to be determined a time of proposal.



Automated application of groundwall tapes.



Close-up of robotic tape head.



Precision-cut dummy core used for dimensional checks (all systems) and final factory cure for Systems I and II.



Voltage endurance testing of coils.



Hot pressing cell portion of coils.



Specially-built packing cases provide secure shipping.

## National Electric Coil

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