RELIABLE TRANSFORMERS for Renewable Energy

GSU PAD MOUNT TRANSFORMERS

VIRGINIA TRANSFORMER CORP

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GSU TRANSFORMERS
IT’S IN THE DESIGN! – IT’S WHAT’S INSIDE THAT COUNTS

THE PROBLEM:

- SOLID STATE CONVERTER/INVERTERS IN TYPE 3 AND 4 TURBINES PRODUCE CURRENT AND VOLTAGE HARMONICS
- 5-LEGGED AND WOUND CORE DESIGN IS MOST SUSCEPTIBLE TO HARMONICS AND GASSING
- THESE HARMONICS CAUSE LOCALIZED HEATING IN THE CORE AND COIL – LEADING TO GASSING AND ACCELERATED INSULATION AGING
  - GASSING --------------- LOSS OF LIFE
  - DEGASSING --------------- LOSS OF REVENUE
- DESIGN CONSTRUCTION - 3 - LEGGED CORE, RECTIFIER TYPE DESIGN MITIGATES HEATING, GASSING, AND PARTIAL DISCHARGE
- CORE FLUX DENSITY DESIGNS MINIMIZE HARMONICS AND HOT SPOTS
- ELECTROSTATIC SHIELDS – PREVENT CAPACITIVELY (COUPLED TRANSFER OF HIGH FREQUENCY HARMONICS FROM ONE WINDING TO ANOTHER)

THE SOLUTION:

- 30 YEARS EXPERIENCE IN RECTIFIER TRANSFORMER DESIGN
- RECTIFIER DUTY DESIGN MITIGATES HARMONIC HEATING AND GASSING
- 3 - LEGGED DESIGN OVERCOMES GASSING
- ELECTROSTATIC SHIELDS PREVENT COUPLED TRANSFER OF HARMONICS IN WINDING
- 3 YEAR WARRANTY, INCLUDING GASSING

RELIABLE GSU TRANSFORMER FOR RELIABLE POWER
RELIABILITY BUILT THROUGH INNOVATIVE TECHNOLOGY

- Insulation design: no hot spots
- Precompression connectors - no arcing
- Clamped coils - no short circuit failures
- Automated core cutting - no burrs
- PLC controlled windings - no loose coils
- External weak link fuse box - no downtime or oil contamination
- Galvanized radiators - no rust - no oil leaks
- Robotic welding - no joint leaks

25 YEAR LIFE
PROTECTED BY PATENTS

IT'S WHAT'S INSIDE THAT COUNTS
### STANDARD FEATURES

- **PAD MOUNT LOOP FEED DEAD FRONT**
- 1000 KVA – 3500 KVA
- 15 KV – 34.5 KV
- **ALUMINUM WINDING**
- **EFFICIENCY:** >99.3%
- **BIL HV 150 - 200KV, LV 30 - 45 KV**
- **DELTA / GROUNDED WYE**
- **TEMPERATURE RISE 65° C**
- **FLUID - MINERAL OIL**
- **VOLTAGE ADJUSTMENT +5% TO -5% IN 2.5% STEPS**
- **GAUGES - PRV, PRESSURE/VACUUM LEVEL, TEMP.**
- **PAINT - POWDER COAT BAKED EPOXY**
  - **MUNSELL GREEN (OTHER COLORS AVAILABLE)**
- **WEATHER PROOF GASKETS IN RETAINED GROOVES**
- **3 YEAR WARRANTY, INCLUDING GASSING**
- **RADIATORS: GALVANIZED, BOLT-ON / FIELD REPLACEABLE**
- **ELECTROSTATIC SHIELDING**
- **STAINLESS STEEL DOOR HINGES**
- **PADLOCKING AND PENTA HEAD BOLT, 3 POINT LATCHING**
- **1” OIL DRAIN VALVE**
- **NEMA SST GROUND PADS**
- **POINT LIFTING**
- **JACKING BOSSES**
- **PRV, PRESSURE/VACUUM LEVEL, TEMP.**

### OPTIONAL FEATURES

- **PAD MOUNT RADIAL FEED - DEAD FRONT, LIVE FRONT**
- > 3500 KVA
- **COPPER WINDINGS**
- **EXTREME LOW LOSS (LL/NLL) DESIGNS AVAILABLE**
- **WYE/WYE**
- **TEMPERATURE RISE 55° C/65° C**
- **FLUID: FR3 / ENVIROTEMP / LUMINOL**
- **PAINT: CHOICE OF COLORS**
- **EXTERNAL MOUNTED WEAK LINK FUSE BOX**
- **RAD VALVES**
- **CIRCUIT BREAKERS**
- **EXTERNAL DRAIN VALVE**
- **CSA, IEC, UL**
A 25 YEAR LIFE TRANSFORMER

SOLAR UTILITY – SCALE TRANSFORMERS

WILL YOUR TRANSFORMER STILL BE WORKING AFTER 25 YEARS?

- STAND-ALONE OR E-HOUSE INSTALLATIONS
- LIQUID GSU PAD MOUNTS – LONG LIFE INSTALLATIONS
- LIQUID OR DRY TYPE FOR E-HOUSE INSTALLATIONS AVAILABLE

PROJECTED DEMAND

- 2010
- 2020
- 2030
- 2040

END-USE EFFICIENCY

- FOSSILS
- NUCLEAR
- WIND (35%)
- SOLAR (55%)
- HYDRO (4%)

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