



Marthinusen & Coutts

Your Assets. Your Needs. Your Service Partner.

Zambia



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About Marthinusen & Coutts Zambia

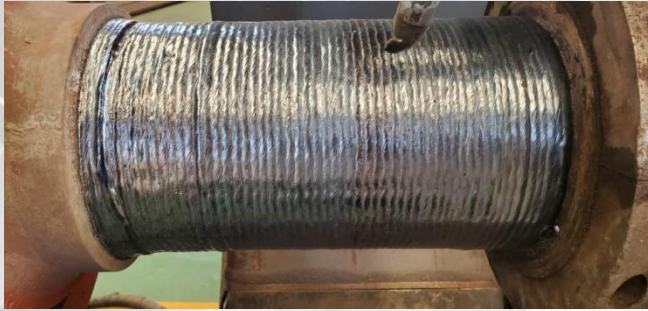
- ▶ Subsidiary of Marthinusen & Coutts (RSA) with local partners
- ▶ A world class repair shop situated in Kitwe Zambia.
 - Main workshop = 1705m²
 - Smaller workshop = 453m²
 - Office block = 608m²
- ▶ M&C Zambia services all industries including Power Gen across the entire Zambia, the DRC, Tanzania and Malawi
- ▶ We service and repair all types of:
 - Small, Medium voltage AC motors up to 4,6MW 3300 Volt
 - Transformer up to 5MVA
 - And provide substantial on-site services , testing and engineering assistance
- ▶ Total Employees 44



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Submerged arc micro-welding



Slipring Repairs

Marthinusen & Coutts Zambia Capabilities

- Dedicated winding insulation systems to ensure the right system for the right application
- Vacuum pressure impregnation (VPI)
- High-speed balancing (G1) to 12 ton
- Dedicated ovens for drying, burn-off and curing
- Testing of direct current, traction, low and medium voltage motors
- Specialised testing facility for ventilation fan motors
- Submerged arc micro-welding and shaft repairs
- Machine shop including lathes and milling machines
- In-house developed failure analysis database
- Winding data verification and design systems
- 3D CAD with finite element analysis



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WORKSHOP

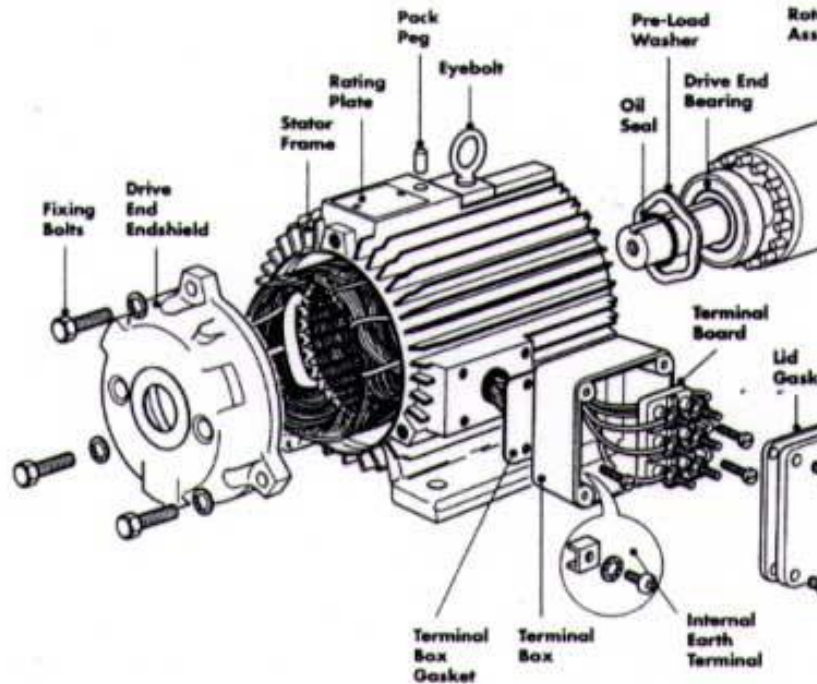


Cranes

- 1 x double hoist crane (17 ton & 6 ton)
- 1 x 7 ton single hoist crane

Departments

- Incoming assessment
- Rewind section
- Mechanical & boiler shop
- Assembly
- Test bay
- Sandblast area
- Paint bay
- Balancing machine
- VPI



INCOMING ASSESSMENT

Motor dismantle gets recorded on assessment sheet

Mechanical assessment

- Shafts
- Housings
- Measuring equipment calibrated

Electrical assessment

- Megger tests
- Core tests
- Surge tests
- Phase resistance



WINDING SECTION

- Record winding data and put it through the winding verification program
- Temperature control burn off oven
- 2 x coil winding machines
- Class H insulation
- Double dip epoxy
- Curing oven
- VPI

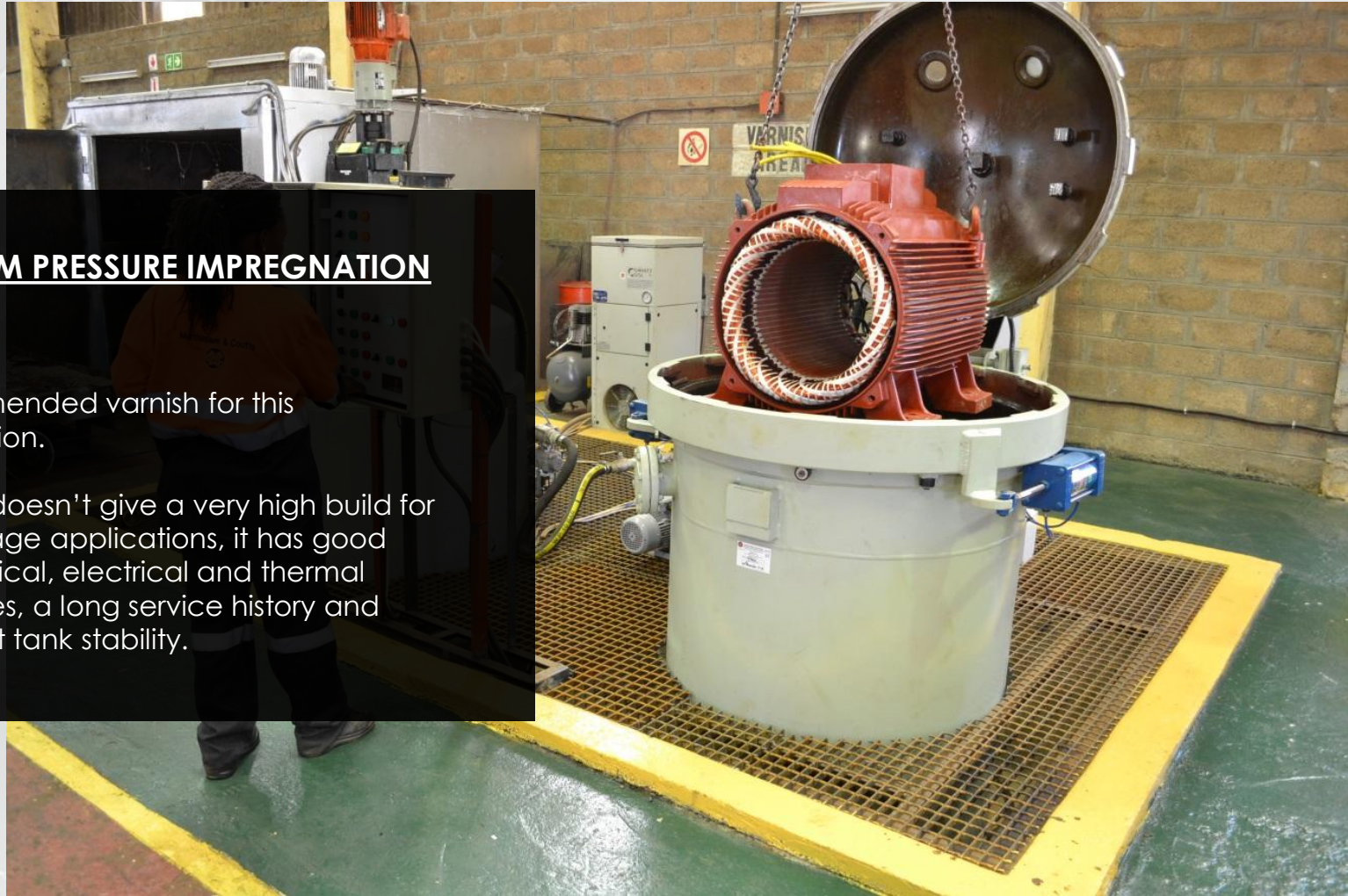




VACUUM PRESSURE IMPREGNATION

Recommended varnish for this application.

Whilst it doesn't give a very high build for low voltage applications, it has good mechanical, electrical and thermal properties, a long service history and excellent tank stability.





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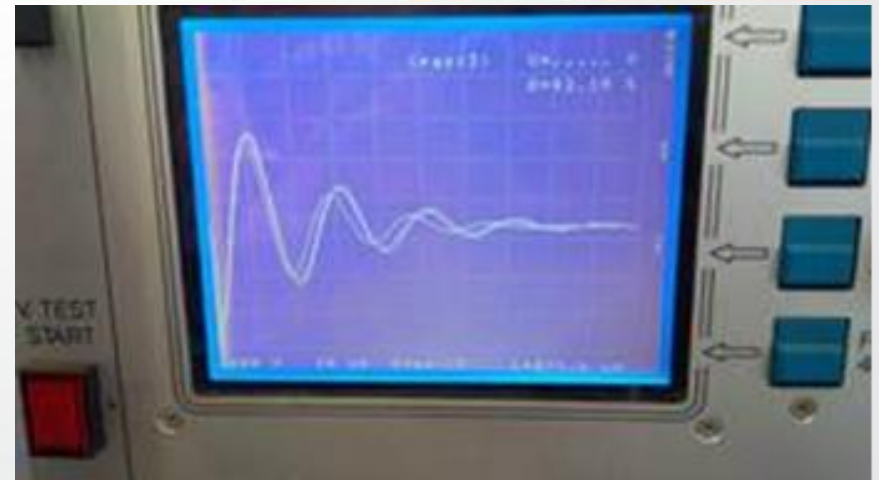
MACHINE SHOP

- 5 x machine lathes
- 2 x Milling machines
- Binding machine
- Submerge arc welding machine
- 150 ton Horizontal press machine
- Measuring equipment calibrated



CURRENT TEST BAY FACILITY

- ▶ Test procedures
 - Megger between and to earth
 - Phase resistance tests
 - Induction
 - Lock rotor
 - Pressure test
 - Core tests
 - Vibration tests
- ▶ Risati
 - Sure test interturn test
- ▶ Core tester
 - Core watt loss
 - Core temperature rise
- ▶ Test bases
- ▶ No-load test runs





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NEW AC/DC TESTBAY – INCLUDING POWER ANALYZER





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12 TON BALANCING MACHINE



750KG BALANCING MACHINE





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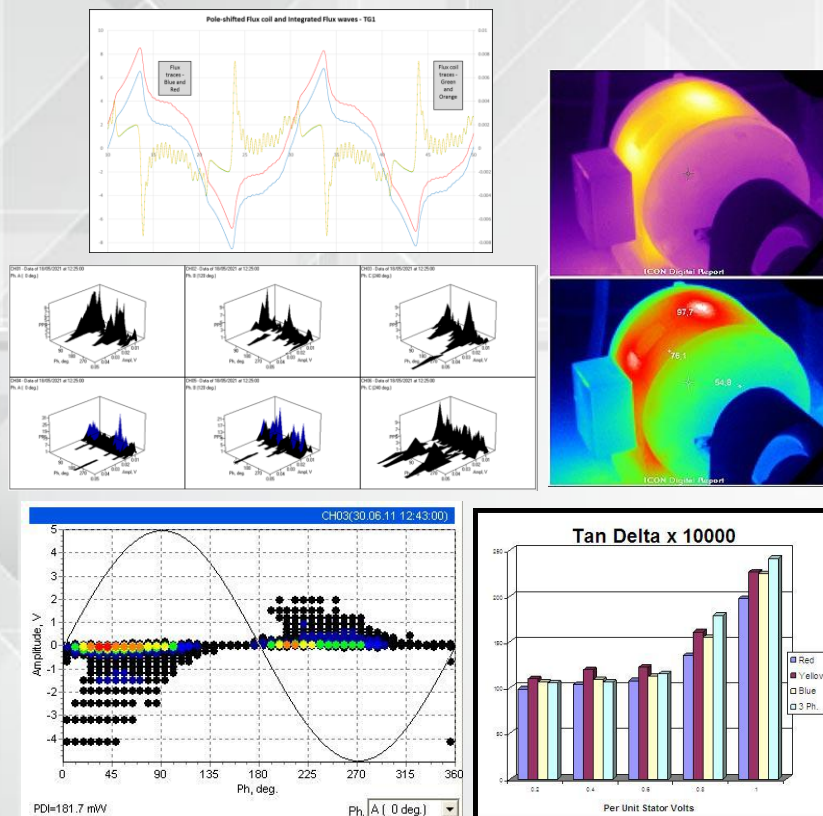
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FINAL PRODUCT INCLUDING TESTS REPORTS





M&C ON- SITE ELECTRICAL AND MECHANICAL ENGINEERING SERVICES



- Insulation resistance
- Polarisation index testing
- Resistance testing
- Current signature analysis
- Recurrent surge graph (RSG)
- Partial discharge / Corona (TVA) probe testing
- Rotor flux analysis (stray flux)
- Tan-Delta testing
- Laser alignment of all types of equipment
- Vibration analysis and fault finding
- Bearing condition assessment
- Transformer oil sampling, purification and replacement
- Stator and rotor rewinds
- Condition monitoring and assessment
- Repair of oil leaks



M&C ON- SITE ELECTRICAL AND MECHANICAL ENGINEERING SERVICES cont.



- Bearing removal
- Inspection, installation and commissioning
- Dimensional inspection
- Rotor removal and inspection
- Non-Destructive Testing (NDT) of machine components
- Inspection of the oil system, oil pumps, pressure regulating and pressure control valves, including all control devices
- Emergency stop and valve control valves
- Commutator skimming and on-site balancing
- Root cause analysis and troubleshooting
- De-magnetising and magnetism surveys
- On-site balancing
- Thermography
- Reverse engineering
- Stator and rotor winding epoxy sealing



COMPLETED PROJECTS



4MW for Kanshansi



3 MW Shaft for Mupane



3 MVA Trf for Kalumbila

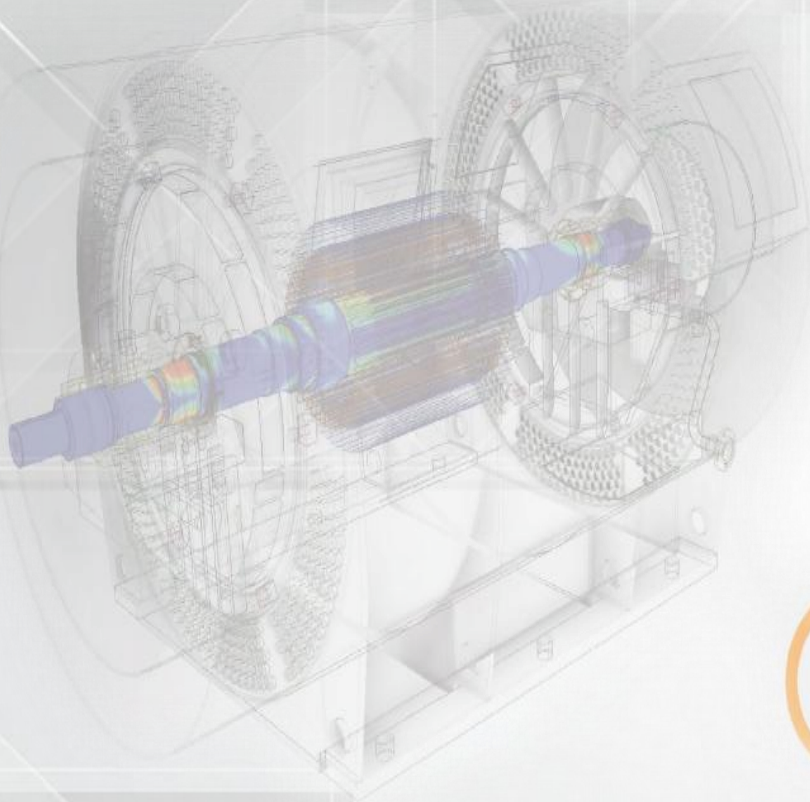
- Kansanshi – 2 x 315kW 12 pole floatation cell rewinds
- Kalumbila – 2 x 5MVA transformer overhauls
- Lumawana – 1 x 10MVA transformer overhaul
- Lumwana – 2 x 3MVA transformer overhauls
- Kansanshi – 750kW 4 pole rewind
- Zesco Livingstone Hydro Station - 3MVA Generator rewind
- Lubambe – 2 x 1800HP DC motors rewinds
- Mopani – Testing 80 x ventilation fans on specialized testing facility
- KCM – Maintenance on various pump motors
- Zambia Sugar – 800kW pump motor rewind
- Zambia Sugar – 250kW fan motor rewind
- Chibuluma – 500HP mill motor rewind and shaft replacement
- KCM – Balancing of 5 x 3300kW rotor at operating speed
- Mopani – Balancing of blower



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CONTACT US:

Management team

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Thank You...

ACTOM