

WINTATS 8800

Traction Armature Testing System




an SKF Group Company

The WINTATS 8800 (Traction Armature Test System) is a field proven and rugged system for testing armatures. It combines the most common process electrical tests into one automated instrument. HiPot, Surge and Resistance tests are standard. Windings can be tested thoroughly and accurately.

- For Traction Armatures
- HiPot, Resistance Surge,
- Fast and Accurate
- Custom Built Fixture for added flexibility
- Menu Driven Operation and Calibration
- Rugged, Field-Proven Hardware
- Self Test Diagnostics
- Plug-In Replacement Boards
- Windows Driven
- Network Interface Capability

This semi-custom instrument is assembled from standard components to customers specifications. The tester's capabilities are not limited to those described here - other features are available. Please feel free to discuss modifications with a Baker Instrument Company, an SKF Group Company representative so we can better meet your needs.

WINTATS 8800 Operation

The WINTATS 8800 is comprised of the WINTATS 8800 equipment rack, containing the computer, power supplies, and measurement circuits, plus the CAM RST armature indexing stand. In operation, the armature to be tested is loaded onto the RST indexing stand. The test contacts are positioned next to the armature commutator, and testing is begun at the "Start Test" command. The standard test sequence consists of DC and/or AC HiPot tests, a Resistance Test, and a Surge Test.

Automation

The WINTATS 8800 is a fully automatic, masterless armature test system. The operator does not set the test voltages or pass/fail limits before each test. All test parameters and pass/fail limits are preprogrammed in a Master file.

The WINTATS 8800 is programmed using a simple menu and is prompted to input test parameters and pass/fail tolerances for each test. Typical programming time for a new Master file is only a few minutes. To avoid corrupted data unauthorized personnel can be locked out of the programming mode. To conduct a test, an operator simply recalls a Master file. The armature is connected to the tester and then the tester automatically sets the test voltages, takes the measurements, and gives a pass/fail signal. The test data is then displayed on the screen for review.

Software

The software package included with the WINTATS 8800 helps manage and record the results of tests. The WINTATS automatically maintains all Master and Test Results on the hard drive. During normal operation these files are saved and organized so that they can be easily accessed by the user in a variety of ways. All access and manipulation of these files can be performed through the Windows based software interface.

WINTATS 8800 Testing

AC & DC Tests

For AC HiPot (High Potential) testing, the WINTATS 8800 uses arc detection to sense breakdowns to ground or between windings which would otherwise go undetected using average current measurement techniques. It also has capacitive compensation capability. This measures the resistive portion of the leakage current, rather than the total leakage current.

DC HiPot testing checks the integrity of the insulation system with high DC voltage. Leakage current is then measured in microamps.

Surge Tests

The high voltage surge or impulse test checks for insulation problems between turns, coils, and bar-to-bar.

Resistance Test

The most frequent fault encountered in the manufacturer of armatures is a poor connection between the coils and the commutator. A common name for this type



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of fault is a weld failure. It becomes apparent when either a high resistance is measured or an open condition is detected at the faulty connection.

The Resistance test is conducted to find this problem as well as wrong wire size, stretched wire, misconnections, and dead shorts. It uses an autoranging DC constant current supply to measure the resistance of a winding. With the use of Kelvin connections, low resistance winding tests are accurate and repeatable. Resistance measurements between 200k and 100 μ are corrected for temperature to the equivalent resistance value at 25°C or to a customer specified temperature.

Field Calibration

Many years of reliable operation have been designed into all WINTATS 8800 so calibration is not frequently required. When calibration is required, the WINTATS 8800 can be field calibrated by adjusting software coefficients through a simple menu using ISO procedures.

Repair

The electronics in the WINTATS 8800 are rugged, reliable, solid-state circuitry. Modular design uses plug-in PC boards for quick replacement should repair be necessary.

Fixturing

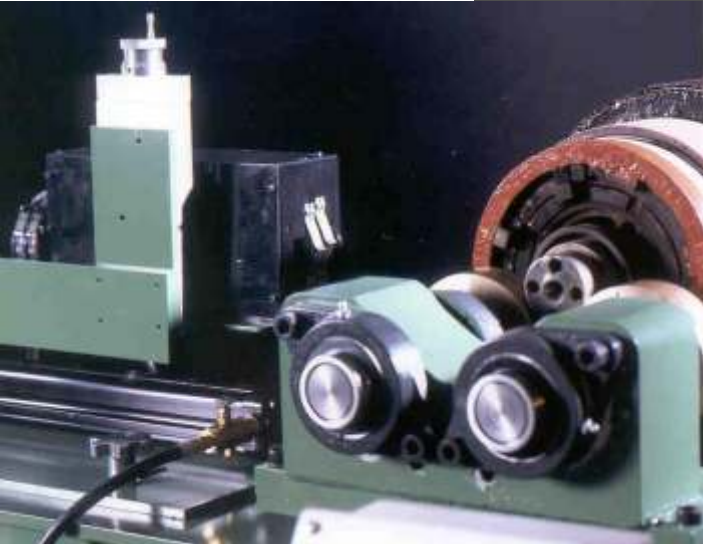
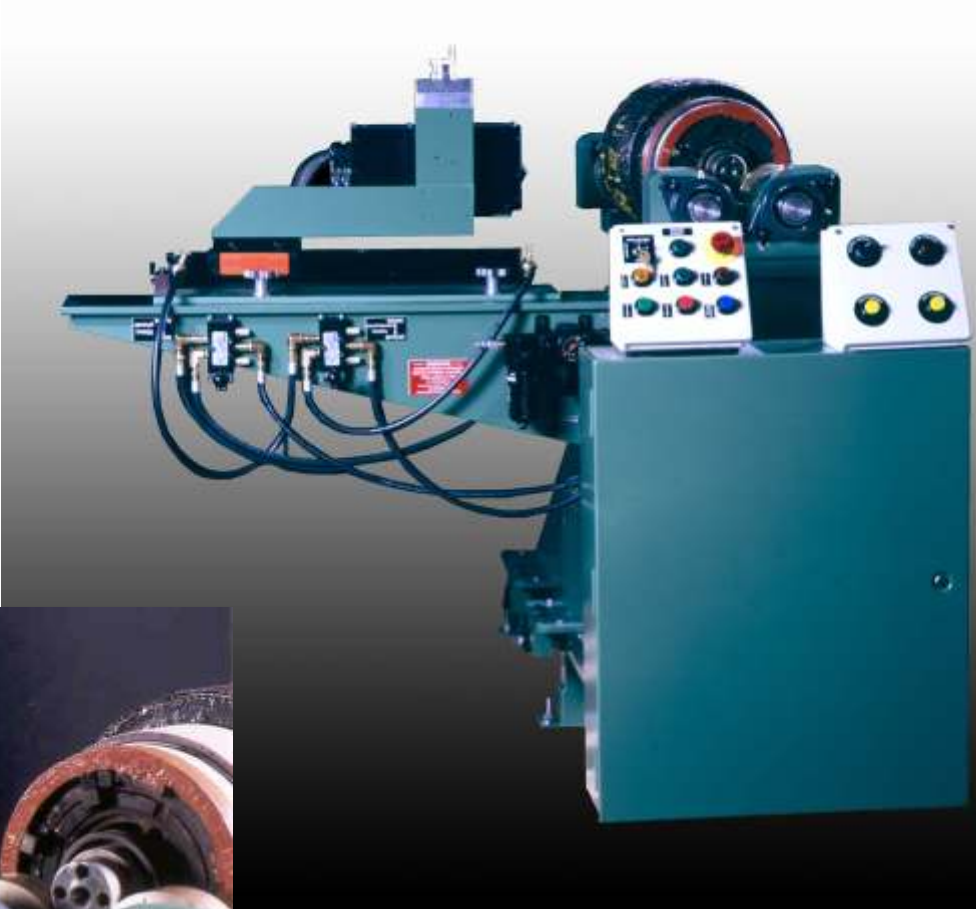
A rugged custom test fixture is provided with the WINTATS 8800 for testing your armatures. The purpose of this fixture is to provide a means of quickly connecting the armature to the tester and providing safety to the operator. Baker Instrument Company has this fixture custom built to meet your specific needs.

The armature is rotated by means of a rubber drive wheel contacting the core of the armature. The wheel is driven by a stepper motor under computer control.

Usually, one or two optical sensors are used to sense the commutator slots as the armature rotates. Either an encoder or the stepper motor pulse count is used to sense that the distance between slots are similar when indexing the armature.

Customized Testing

Please contact Baker Instrument Company, Automated Systems Division, for more detailed information or specifications. We'll be happy to discuss your applications or give you a customized proposal tailored to your testing needs.



Technical Specifications

Computer:

Processor: Pentium MMX or better
Architecture: Industrial PC Packaging

Peripherals

Display: High resolution LCD Screen
Printer: Optional
Floppy Disk Drive: 3.5 inch, 1.44 MB
Hard Disk Drive: IDE
CDRW Drive
USB: Standard

Communications: Ethernet is standard.

DC HiPot:

Voltage: Programmable 100 to 15,000 VDC in 150 VDC increments, 5% accuracy
Current: 100 μ A maximum, 1 μ A resolution, programmable pass/fail limit in 1 μ A increments, +/- 1 μ A second increments.
Duration: Programmable in 1 second increments.

AC HiPot:

Voltage: Programmable 150 to 5,000 VAC in 50 VAC increments, 50/60 Hz, linear ramp up and down
Current: 200mA maximum, 1mA resolution, programmable pass/fai limit in 1 mA increments, arc detection for improved fault detection.
Duration: Programmable in 1 second increments.
Leakage Current Method Installed: "Total or Absolute Leakage Current" or " Real or Resistive Leakage Current."

Resistance

Autoranging
3.5 digit resolution
0.4% of full scale accuracy in each range
0.1% of full scale repeatability
Kelvin Leads and Contacts for bar-to-bar testing
Ambient temperature normally compensated 25°C or user defined
Infrared temperature sensing (Optional)

Resistance Range	Current
< - 2 m	20A
2 m - 20 m	20A
20 m - 200 m	2 A
200 m - 2	200mA
2 - 20	20mA
20 - 200	20mA

High Voltage Impulse (Surge)

Voltage: Programmable 50 to 1500 volts peak bar to bar in 50 volt increments
Pulse Energy: 11.25 Joules maximum
Discharge Capacitor: 0.1 μ F
Load: Greater than 10 μ H
Digitizing Rate: 5 Msample/second
Programmable pass/fail percentage limit based on Baker Instrument Company's patented Error Area Ratio.

Fixtures

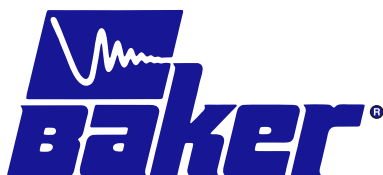
The WinTATS 8800 Automatic Winding System can be configured with standard or customized fixturing for testing of all windings.

Power Requirements

Input Voltage: 110 VAC at 500VA max, range of 86-140 VAC at 46-67Hz
Two pole magnetic circuit breaker provides overcurrent protection
Line surge protection against impulses of up to 6KC, 3 KA, (IEEE 587 Cat B and IEC 664 Cat IV)
Insulation transformer to protect the computer
Input Voltage: 110 VAC
Power Consumption: 3000VA maximum
Overcurrent Protection: Two pole magnetic circuit breaker

Environmental Protection

Operating temperature range 0-40°C
Water and dust proof IP55 (NEMA12) enclosure are available as an option



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