

CORE LOSS TESTERS

Core Loss Testers (CL and CL-A Series)

Core loss testing has become one of the most important tests for quality assurance in the motor industry. It has proven its value for predicting a motor's reliability and operating cost following repair.

The function of a core loss test set is to determine whether a motor has damaged core iron. Damage could include shorts between laminations and electrical arcing. The core loss test is a vital step in the rewinding of a motor. A core loss test should be performed before the windings are removed to detect any damage to the core. After the windings are removed, the core should be re-tested to verify that it was not damaged during removal of the old winding. Although it is possible for a motor to still run with core damage, the efficiency of that motor will be greatly reduced. The motor will consume more power to operate at normal levels and it will cause the motor to generate more heat. Heat will in turn reduce the reliability of the motor and its overall functional life. An increase of 10°C in the winding can reduce thermal insulation life by half. All of these consequences add up to more operating and maintenance cost and loss of production time.



Model CL10-A

The CL Series

Phenix Technologies manufactures a line of high current AC supplies with continuously variable output specifically designed for testing stator, rotors and armature cores. These units have very low distortion, independent of load and output setting. This ensures test results that are both accurate and repeatable.

An optional computer and printer with user-friendly software is available to guide the operator through the test sequence and to assist in determining the condition of the core. A realistic duty cycle allows you to overexcite and heat the core sufficiently to locate hot spots.



Model CL25

Exclusive Technical Advantages

The CL-series of core loss testers manufactured by Phenix offers several important technical advantages over those available from any other supplier. The first, and most critical, is the true sinusoidal waveform output produced by the Phenix test sets. Because there is no distortion on the output, regardless of load, the user is assured of the highest possible metering accuracy. Lack of distortion also allows absolute repeatability of test results and use over a full range of motors. From fractional horsepower to the full rating of the test set, accurate testing is assured.

A standard feature of all Phenix CL models is a computer interface that allows a computer to read the meters directly. This eliminates the possibility of any data entry errors. Precision control of the output setting is possible because Phenix provides 3 to 5 ranges per output tap. This translates into 3 to 5 times greater regulation of the output voltage setting.



Model CL60-A

Fully Automated Core Loss Test Sets (CL-A Series)

The future of core loss testers is here today. The CL-A series of Phenix core loss testers has packaged speed, accuracy and easy operation into affordable test sets for the motor industry.

In addition to the standard design and safety features of the CL models, the CL-A has been designed to be fully automated. The test set utilizes Windows 98/NT software for its operating system. Operation of the test unit is as easy as hooking up the test leads, typing in the parameters of the test and pushing a button. The test set takes over from there. The unit automatically ramps up the voltage, records the results, does all the necessary calculations and ramps the voltage back down. The automatic function virtually eliminates the chance for human error when testing and increases the accuracy and repeatability of the test. Because the test set is automatic, the training on the test set hardware is greatly reduced. If the test set is incorrectly set up for a test, the computer will let the operator know there is something wrong by displaying

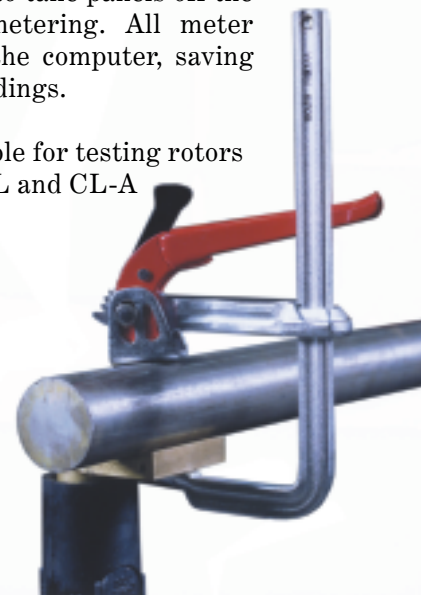
one of several pre-programmed messages. These messages have been designed to alert the operator of several common test set up errors. This saves time and

increases the safety of the operator. A database can be built for the specific motors tested. Past results can be easily accessed when re-testing a motor that has been tested in the past, making trend analysis quick and easy.

At the heart of these units is the Programmable Logic Controller (PLC). The computer software interfaces with the units PLC that in turn guides the test set through its test functions. The PLC eliminates a large portion of circuitry required in manual test units. With less circuitry, the test set become much more reliable and easier to troubleshoot if a problem does occur.

Another advantage of the CL-A is the meter calibration. There is no need to take panels off the test set to calibrate the metering. All meter calibration is done through the computer, saving time and insuring accurate readings.

Specialized clamps are available for testing rotors and armatures for both the CL and CL-A series. (see picture at right)



Standard Design and Safety Features

- Main power circuit breaker with indicator
- Windows operating software
- ON/OFF pushbuttons
- Multi-range digital meters
- HOLD switch to freeze meter readings
- External interlock provision
- Continuously variable output
- Thermal overload protection with indicator
- Rugged steel cabinet with casters
- Output cable with storage hook
- Separate voltmeter leads for greater metering accuracy
- Instruction manual with schematics and parts list

Maximum Test Capability

CL10	CL25	CL60	CL125
500 HP	1250 HP	2500 HP	5000 HP

NOTE: Actual capability can vary with motor design.

Duty Cycle

Continuous Testing

Option

6" opening clamps for armature testing.

Specifications

Input, output, duty cycle and metering ranges and accuracy remain the same as the manual CL series of core loss tester. The dimensions of the test sets have changed to the following:

	Height	Width	Depth	Weight
CL 10-A	44 in (1118mm)	36 in (914mm)	25 in (635mm)	815 lb (370kg)
CL 25-A	44 in (1118mm)	36 in (914mm)	25 in (635mm)	865 lb (392kg)
CL 60-A	49 in (1245mm)	45 in (1143mm)	27 in (686mm)	1100 lb (499kg)
CL 125-A	49 in (1245mm)	50 in (1270mm)	30 in (762mm)	1325 lb (601kg)

Instrumentation

	Voltmeter	Currentmeter	Wattmeter
CL10	0-15.000V	0-667/1999A	0-10.000kW
CL25	0-19.999/25.00V	0-1000/1999A	0-19.999/25kW
CL60	0-19.999/60.00V	0-1000/1999A	0-19.999/60kW
CL125	0-19.999/90.00V	0-1400/2100/4200A	0-19.00/125kW

- NOTES: 1. Metering system accuracy is $\pm 0.5\%$ F.S.
 2. All meters have 0.5" LED display
 3. Voltmeter and wattmeter are 4 1/2 digit; currentmeter is 3 1/2 digit.

Dimensions/Weights

CL10	CL25	CL60	CL125
30" W x 30" D x 47" H	30" W x 30" D x 47" H	32" W x 45" D x 48" H	60" W x 34" D x 52" H
(762mm W x 762mm D x 1194mm H)	(762mm W x 762mm D x 1194mm)	(813mm W x 1143mm D x 1219mm H)	(1524mm W x 863mm D x 1321mm H)
600 pounds (272kg)	750 pounds (304kg)	1500 pounds (680kg)	2000 pounds (908kg)

Output

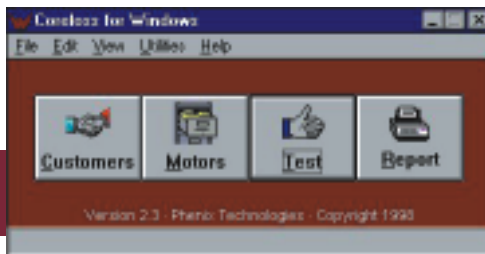
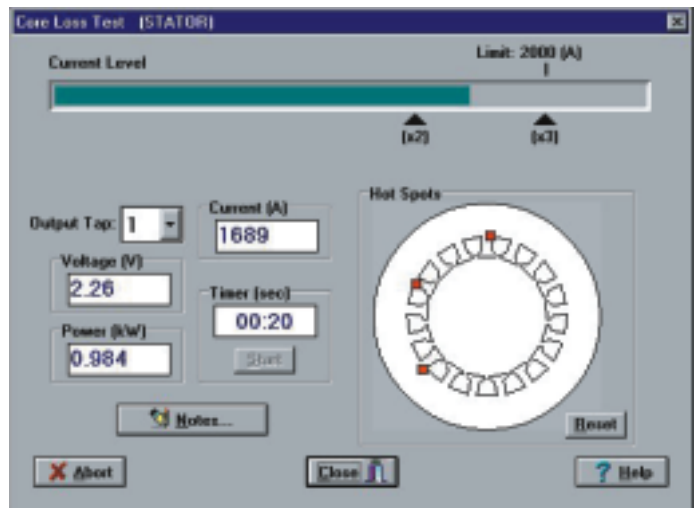
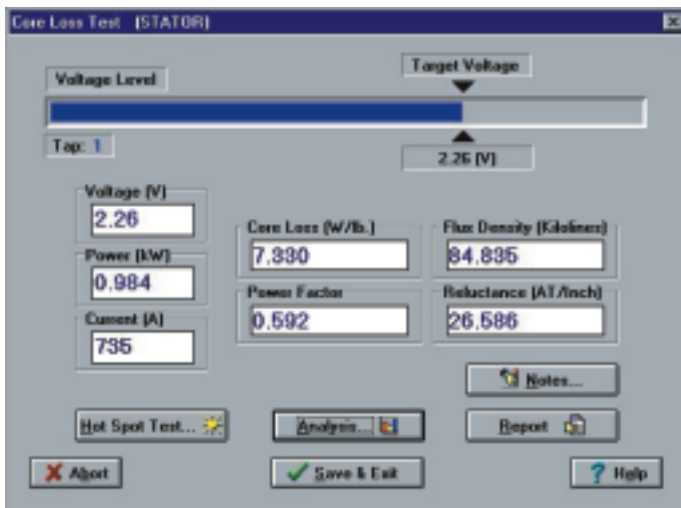
Model	Step	Tap 1	Tap 2	Tap 3
CL10	1	0-1.67V @ 2000A	0-5V @ 667A	
	2	1.67-3.34V @ 2000A	5-10V @ 667A	
	3	3.34-5.0V @ 2000A	10-15V @ 667A	
CL25	1	0-4.16V @ 2000A	0-8.33V @ 1000A	
	2	4.16-8.33V @ 2000A	8.33-16.66V @ 1000A	
	3	8.33-12.5V @ 2000A	16.66-25V @ 1000A	
CL60	1	0-6V @ 2000A	0-12V @ 1000A	
	2	6-12V @ 2000A	12-24V @ 1000A	
	3	12-18V @ 2000A	24-36V @ 1000A	
	4	18-24V @ 2000A	36-48V @ 1000A	
	5	24-30V @ 2000A	48-60V @ 1000A	
CL125	1	0-6V @ 4200A	0-12V @ 2100A	0-18V @ 1400A
	2	6-12V @ 4200A	12-24V @ 2100A	18-36V @ 1400A
	3	12-18V @ 4200A	24-36V @ 2100A	36-54V @ 1400A
	4	18-24V @ 4200A	36-48V @ 2100A	54-72V @ 1400A
	5	24-30V @ 4200A	48-60V @ 2100A	72-90V @ 1400A

NOTE: Other ratings are available. Consult factory.

Input

CL10	CL25	CL60	CL125
208/220VAC, 50A	440/480VAC, 60A	440/480VAC, 135A	440/480VAC, 275A

- NOTE: 1. All inputs are single-phase, 50/60 Hz.
 2. Other inputs are possible; consult factory.



Sample screens from the core loss tester software.

Company Profile

PHENIX TECHNOLOGIES is a leading manufacturer of high voltage, high current, and high power test systems and components. Our test systems are in operation around the world satisfying the testing requirements of our customers.

Our 65,000 square foot headquarters is a modern manufacturing facility where all the major components of our systems are produced. All aspects of electrical and mechanical design, software design, and actual production are performed in this facility and controlled by an ISO9001 quality program. Our engineers offer a unique blend of theoretical knowledge and practical experience. Our ever-expanding Service and Calibration Department stands

ready to assist you during and after installation to insure years of trouble-free service.

Our engineering resources, manufacturing capability, and commitment to flexibility have earned us the reputation as the supplier of choice. From portable test equipment to large, cutting edge automated test systems, Phenix Technologies provides solutions for your testing needs. You owe it to yourself to discuss your testing requirements with Phenix Technologies today.

The PHENIX Technologies Product Line

- ▼ High Voltage AC Dielectric Test Sets
- ▼ Resonant Test Sets
- ▼ Variable Frequency Resonant Test Sets
- ▼ DC Hipots and Insulation Test Sets
- ▼ Automatic Insulating Material Testers (D149)
- ▼ Microhmmeters
- ▼ Liquid Dielectric Test Sets
- ▼ Megohmmeters
- ▼ AC/DC Kilovoltmeters
- ▼ Partial Discharge Detector
- ▼ Vacuum/Oil Interrupter Testers
- ▼ Bucket Truck Testers
- ▼ High-Frequency Cable Aging Test Sets
- ▼ Heat Cycling Test Sets
- ▼ Rubber Goods-Protective Equipment Testers
- ▼ Core Loss Testers
- ▼ AC, DC and AC/DC Motor Test Sets
- ▼ Water Brake Dynamometers
- ▼ Transformer Test Sets
- ▼ Frequency Response Analyzer
- ▼ High Current / Circuit Breaker Test Sets
- ▼ Recloser Test Sets
- ▼ DC Power Supplies
- ▼ High Voltage DC Cable Thumpers
- ▼ High Voltage Terminations
- ▼ High Power Column-Type Variable Transformers
- ▼ High Power Thoma-Type Variable Transformers
- ▼ Voltage and Current Stabilizers
- ▼ Impulse Generators/Standard Capacitors/Coupling Capacitors

Your local representative is



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