Motor Core Loss Test Sets

Test electric motors from fractional to 20,000 HP

- Fully automated with data acquisition
- True sine wave output ensures accurate and repeatable test results
- Simple set-up and operation

CL25A

CL60A

CL125A

CL500A

TESTING APPLICATIONS

- Perform core loss testing on stators, rotors, and armatures to insure the quality of a motor or motor rewind
- Perform hot spot testing to identify localized shorted laminations that cause hot spots and insulation failure in a motor

CABLE | GIS SWITCHGEAR | CIRCUIT BREAKER | TRANSFORMER | MOTOR | GENERATOR | INSULATION MATERIALS | RECLOSER | PROTECTIVE EQUIPMENT | PORTABLE

Brochure No. **50407**

SAFETY and DESIGN FEATURES

- Main power circuit breaker
- Fused power control circuits
- Emergency Off pushbutton
- Multi-range digital meters
- External interlock provision
- Continuously variable output
- Thermal overload protection
- Output is controlled by a motorized voltage regulator with variable rate of rise
- Output cables for stator testing
- Internal, external, and transient overload protection
- Zero-start interlock
- Rugged steel cabinet
- Casters, lockable cover, and storage hook (CL10A, CL25A, CL60A, CL125A)
- Separate voltmeter leads for greater metering accuracy
- Two copies of Operation/ Maintenance manual

BENEFITS OF CORE LOSS TESTING

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 damage caused by winding failure. A vital step in the rewinding of a motor is performing a core loss test 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 the 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.

DESCRIPTION

The Phenix Technologies Core Loss Test Set is a continuously variable low voltage, high current power supply for testing stators, rotors, and armature cores. These units have very low distortion, independent of load and output setting. This insures test results that are both accurate and repeatable.

The basic test set includes complete instrumentation, output and voltmeter cables, computer and printer. The computer is used for complete control, metering, data storage and evaluation of test results.

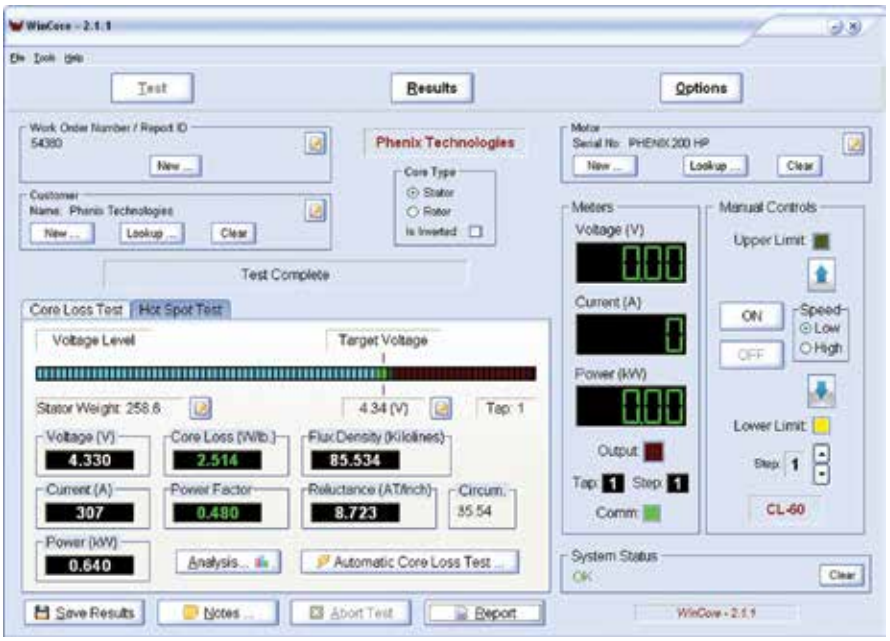
Operation of the test set is as easy as hooking up the test leads, typing in the parameters of the test and pushing a button. The test set takes over from there; automatically ramps up the voltage, records the results, does all the necessary calculations and ramps the voltage back down. The automated function eliminates operator error; several pre-programmed messages will alert the operator of test set up errors, saving time and increasing operator safety. A database can be built for 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.

The operating software interfaces with the test sets Programmable Logic Controller (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 becomes much more reliable and easier to troubleshoot if a problem does occur.

Precision control of the output setting is possible with 3-5 ranges per output tap. This translates into 3-5 times greater regulation of the output voltage setting.

A meter calibration is done through the computer; saving time and insuring accurate readings. There is no need to remove panels off the test set to calibrate the metering.

The duty cycle allows the operator to overexcite and heat the core sufficiently to locate hot spots.



CL10A

OUTPUT

TAP		50/60 Hz		
5 V	L	0-1.67 VAC	@	2000 A
	M	1.67-3.34 VAC	@	2000 A
	H	3.34-5.0 VAC	@	2000 A
TAP		50/60 Hz		
15 V	L	0-5.0 VAC	@	667 A
	M	5.0-10.0 VAC	@	667 A
	H	10.0-15.0 VAC	@	667 A

CL25A

OUTPUT

TAP		50 Hz			TAP		60 Hz		
10.4 V	L	0-3.46 VAC	@	2000 A	12.5 V	L	0-4.16 VAC	@	2000 A
	M	3.46-6.94 VAC	@	2000 A		M	4.16-8.33 VAC	@	2000 A
	H	6.94-10.41 VAC	@	2000 A		H	8.33-12.50 VAC	@	2000 A
TAP		50 Hz			TAP		60 Hz		
20.8 V	L	0-6.94 VAC	@	1000 A	25 V	L	0-8.33 VAC	@	1000 A
	M	6.94-13.88 VAC	@	1000 A		M	8.33-16.66 VAC	@	1000 A
	H	13.88-20.8 VAC	@	1000 A		H	16.66-25.0 VAC	@	1000 A

CL60A

OUTPUT

TAP	STEP	50 Hz			TAP	STEP	60 Hz		
25 V	1	0-5 VAC	@	2000 A	30 V	1	0-6 VAC	@	2000 A
	2	5-10 VAC	@	2000 A		2	6-12 VAC	@	2000 A
	3	10-15 VAC	@	2000 A		3	12-18 VAC	@	2000 A
	4	15-20 VAC	@	2000 A		4	18-24 VAC	@	2000 A
	5	20-25 VAC	@	2000 A		5	24-30 VAC	@	2000 A
TAP	STEP	50 Hz			TAP	STEP	60 Hz		
50 V	1	0-10 VAC	@	1000 A	60 V	1	0-12 VAC	@	1000 A
	2	10-20 VAC	@	1000 A		2	12-24 VAC	@	1000 A
	3	20-30 VAC	@	1000 A		3	24-36 VAC	@	1000 A
	4	30-40 VAC	@	1000 A		4	36-48 VAC	@	1000 A
	5	40-50 VAC	@	1000 A		5	48-60 VAC	@	1000 A

CL125A

OUTPUT

TAP	STEP	50 Hz			TAP	STEP	60 Hz		
25 V	1	0-5 VAC	@	4200 A	30 V	1	0-6 VAC	@	4200 A
	2	5-10 VAC	@	4200 A		2	6-12 VAC	@	4200 A
	3	10-15 VAC	@	4200 A		3	12-18 VAC	@	4200 A
	4	15-20 VAC	@	4200 A		4	18-24 VAC	@	4200 A
	5	20-25 VAC	@	4200 A		5	24-30 VAC	@	4200 A
TAP	STEP	50 Hz			TAP	STEP	60 Hz		
50 V	1	0-10 VAC	@	2100 A	60 V	1	0-12 VAC	@	2100 A
	2	10-20 VAC	@	2100 A		2	12-24 VAC	@	2100 A
	3	20-30 VAC	@	2100 A		3	24-36 VAC	@	2100 A
	4	30-40 VAC	@	2100 A		4	36-48 VAC	@	2100 A
	5	40-50 VAC	@	2100 A		5	48-60 VAC	@	2100 A
TAP	STEP	50 Hz			TAP	STEP	60 Hz		
75 V	1	0-15 VAC	@	1400 A	90 V	1	0-18 VAC	@	1400 A
	2	15-30 VAC	@	1400 A		2	18-36 VAC	@	1400 A
	3	30-45 VAC	@	1400 A		3	36-54 VAC	@	1400 A
	4	45-60 VAC	@	1400 A		4	54-72 VAC	@	1400 A
	5	60-75 VAC	@	1400 A		5	72-90 VAC	@	1400 A

CL300A

OUTPUT

TAP	STEP	50/60 Hz		
60 V	1	0-12 VAC	@	5000 A
	2	12-24 VAC	@	5000 A
	3	24-36 VAC	@	5000 A
	4	36-48 VAC	@	5000 A
	5	48-60 VAC	@	5000 A
TAP	STEP	50/60 Hz		
120 V	1	0-24 VAC	@	2500 A
	2	24-48 VAC	@	2500 A
	3	48-72 VAC	@	2500 A
	4	72-96 VAC	@	2500 A
	5	96-120 VAC	@	2500 A

CL500A

TAP	STEP	50/60 Hz		
25 V	1	0-11 VAC	@	2000 A
	2	11-22 VAC	@	2000 A
	3	22-25 VAC	@	2000 A
TAP	STEP	50/60 Hz		
100 V	1	0-11 VAC	@	5000 A
	2	11-22 VAC	@	5000 A
	3	22-33 VAC	@	5000 A
	4	33-44 VAC	@	5000 A
	5	44-55 VAC	@	5000 A
	6	55-66 VAC	@	5000 A
	7	66-77 VAC	@	5000 A
	8	77-88 VAC	@	5000 A
	9	88-100 VAC	@	5000 A
TAP	STEP	50/60 Hz		
200 V	1	0-22 VAC	@	2500 A
	2	22-44 VAC	@	2500 A
	3	44-66 VAC	@	2500 A
	4	66-88 VAC	@	2500 A
	5	88-110 VAC	@	2500 A
	6	110-132 VAC	@	2500 A
	7	132-154 VAC	@	2500 A
	8	154-176 VAC	@	2500 A
	9	176-200 VAC	@	2500 A

	MODEL	CL10A	CL25A	CL60A	CL125A	CL300A	CL500A
APPROX. MAXIMUM TEST CAPABILITY		500 HP	1250 HP	2500 HP	5000 HP	12,000 HP	20,000 HP
		Note: Actual capability can vary with motor design.					
INPUT	Voltage	208/230 VAC	400/415 VAC or 440/480 VAC (one must be specified)				
	Frequency	Single phase, 50 or 60 Hz (one must be specified)					
	KVA	10	25	60	125	300	500
DUTY CYCLE		Continuous core loss measurement, intermittent hot spot use					
DIGITAL METERING	Voltmeter Range	0-5.000/ 15.000 V	0-15.000 / 25.000 V	0-30.00 / 60.00 V	0-30.00 / 60.00 / 90.00 V	0-60.00 / 120.00 V	0-100.00 / 200.00 V
	Currentmeter Range	0-667 / 2000 A	0-1000 / 2000 A	0-1000 / 2000 A	0-1400 / 2100 / 4200 A	0-1250 / 2500 / 5000 A	0-1250 / 2500 / 5000 A
	Wattmeter Range	0-10 kW	0-25 kW	0-60 kW	0-125 kW	0-300 kW	0-500 kW
	Note: All meters are true RMS, displayed on the computer screen, and accuracy is ±0.5% F.S.						
CABLES INCLUDED	Input Power	6 ga 10′ (3 m)	6 ga 15′ (5 m)	4 ga 30′ (9 m)	1/0 ga 30′ (9 m)	N/A	N/A
	Output Power	500 MCM 10′ (3 m)	500 MCM 15′ (5 m)	500 MCM 30′ (9 m)	500 MCM 30′ (9 m)	500 MCM 25′ (8 m) (3)	500 MCM 30′ (9 m) (3)
	Metering Lead	10′ (3 m)	15′ (5 m)	30′ (9 m)	30′ (9 m)	25′ (8 m)	30′ (9 m)

	MODEL	CL10A	CL25A	CL60A	CL125A	CL300A	CL500A
DIMENSIONS & WEIGHT	L	42″ (1067 mm)	42″ (1067 mm)	45″ (1143 mm)	61″ (1549 mm)	83″ (1676 mm)	110″ (2794 mm)
	W	29″ (737 mm)	29″ (737 mm)	29″ (737 mm)	38″ (965 mm)	66″ (1676 mm)	70″ (1778 mm)
	H	45″ (1143 mm)	45″ (1143 mm)	49″ (1245 mm)	51″ (1295 mm)	69″ (1753 mm)	68″ (1727 mm)
	Wt	605 lbs (274 kgs)	845 lbs (383 kgs)	1500 lbs (680 kgs)	2100 lbs (953 kgs)	4800 lbs (2177 kgs)	6750 lbs (3062 kgs)

OPTIONS

Cable/Clamp Assembly for Armature/Rotor Testing

Models CL10A, CL25A, CL60A
10′ (3 m) 500 MCM Cable with 6″ Clamp (1)
6″ Clamp (1)
10′ (3 m) Voltmeter Lead (1)

Model CL125A
10′ (3 m) 500 MCM Cable with 6″ Clamp (2)
6″ Clamp (2)
10′ (3 m) Voltmeter Lead (1)

Model CL300A
25′ (8 m) 500 MCM Cable with 6″ Clamp (3)
6″ Clamp (3)
10′ (3 m) Voltmeter Lead (1)

Model CL500A
30′ (9 m) 500 MCM Cable with 6″ Clamp (3)
6″ Clamp (3)
10′ (3 m) Voltmeter Lead (1)

High Voltage • High Current • High Power Test Systems and Components

ISO CERTIFIED 9001

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