



Transmission and Distribution Lab Specifications



Major Export Markets Served (2019): Canada, USA, Korea, Saudi Arabia, Mexico, Spain, France, Malaysia, India, China, Turkey, UK, Denmark, Belgium, and Germany
Industry Standards: ISO 9001, ISO 17025, IEEE, ANSI, ASTM, CSA, IEC, NEMA, AS, AEIC

HIGH CURRENT LABORATORY

Power Source for the HC Laboratory:

3 high-current transformers fed from the transmission power system

Specifications of Main Test Bay: Large indoor test cells

Possible Power Frequency: 60 Hz

Max. MVA: 200 MVA **Max. kV:** 20 kV **Max. kA:** 100 kA rms

Electrical Tests:

Low and Medium Voltage Tests: Standard and qualification tests on apparatus such as distribution transformers, disconnect switches, grounding switches, temporary working grounds, connectors, reactors: Arc rating (ATPV) of FR textiles, garments and other PPE

Heat Run Tests: Single and three phase low voltage, high current testing up to

16,000 A on reactors, transformers, CTs, switchgear etc.

Other High Power Tests Offered: DC power source, up to 800 V, 5 kA continuous, 50 kA momentary.

MECHANICAL TESTING LABORATORY

Key Facilities/Services:

- Galloping specs: 40 m length
- High capacity multi-purpose strong floor - 10 m x 20 m
- Vibration spans: length from 15 m to 90 m, up to 50,000 lb (225 kN) equipped with state-of-the-art equipment, instrumentation and data acquisition systems
- Eleven creep spans with various lengths and loading capacity; ambient temperature and high temperature creep bays
- Connector test facility - six heat cycle loops, up to 12,000 A capacity
- Thermal chambers - 6 m length x 5 m width x 3 m height walk-in chamber, temperature range from -50°C to + 80°C
- Sheave test facilities, fixed sheave and sheave pulley system
- Three mechanical cycling test bays
- Sub-span oscillation and longitudinal flexibility test machine drives for spacer-dampers
- Seismic test facility - Tri-axial shaker for equipment qualification

Components Tested:

- Overhead fibre optic cables
- Various types of overhead conductors including high temperature low sag conductors
- Fittings, clamps, connectors, vibration dampers, spacer-dampers and many other components
- Horizontal tensile machining: 100 kip and 200 kip, 15 m length (50 ft.)
- Vertical tensile machining: 120 kip and 600 kip, 2.55 m length (8 ft.)

HIGH VOLTAGE LABORATORY

Dimension of Main Test Hall: 35 m length x 20 m width x 20 m height

Dimension of Secondary Test Hall: 20 m length x 20 m width x 20 m height



High Voltage Lab

Dielectrics Testing Facilities:

Impulse Testing:	Max. Volt	Standard
Lightning Impulse	Indoor 2 MV	Compliant with IEC 60060 series standards and IEEE Std. 4 All applicable IEC, ANSI, CSA, IEEE standards related to high voltage equipment testing
Switching Imp. (Dry)	Indoor 1.5 MV	
Switching Imp. (Wet)	Indoor 1.5 MV	
A.C. Testing:		
Dry	Indoor 750 kV	
	Outdoor 750 kV	
Wet	Indoor 800 kV	
Mobile Resonant Sets:	700 kV	variable inductance
	520 kV	variable frequency
D.C. Testing:		
Dry	1.1 MV	
Wet	700 kV	(mobile system)
PD & RIV Testing:	350 kV & 750 kV	
Capacitance & Tan	450 kV	

Pollution Testing:

Dimension of Main Test Chamber: 10 m length x 4 m width x 13 m height

	Standard	Max. A.C. Volt.	Temp from - to °C
Clean Fog	IEC, IEEE	350 kV	-15°C to +4°C
Cold Fog		350 kV	-15°C to +4°C
Icing Tests	ANSI, IEC	350 kV	-15°C to +4°C

Specialized Facilities & typical tests performed:

Ageing Tests: Insulator tracking wheels (spray and dip), salt fog ageing/corrosion

HV Cable Testing: To industry standards (eg. IEC 60840, IEC 62067, AEIC CS9-06, IEEE 404) for cable systems up to 500 kV rated voltage.

Core Qualification tests (including Accelerated Water Treeing Test):

Dedicated facility to currently test one cable design; Testing performed to industry standards (CSA C68.5, AEIC CS5)

Other Tests Performed on Insulators, Arresters, Bushings, Cable

Terminations: Partial Discharge, load cycling, long-term ageing, all standard insulator tests, all standard cable qualification tests, all standard bushing, termination, and arrester tests

Corona & RIV Testing of insulator assemblies, line hardware and station equipment for up to 765 kV AC and 600 kV DC systems

Safety Equipment Testing Services: Rubber insulating protective equipment certification and periodic testing (to ISO 17025)

- Rubber gloves, blankets, mats, insulated aerial devices, live line tools

IN SITU TESTING AND OTHER TEST CAPABILITIES

On-site Commissioning Testing of Transmission Class Cables:

On-site AC Hi-Pot commissioning testing according to IEC 60840 and IEC 62067 using a mobile AC resonant test set (260 kV/ 83 Amp). Testing includes Partial Discharge (PD) testing using ultra broadband PD monitors with Kinectrics daisy-chain network.

On-site Partial Discharge Testing of Cables: On-site partial discharge testing of cables using non-invasive capacitive or inductive PD sensors using ultra broadband PD monitors. The technology used can pinpoint the location of individual PD sources occurring simultaneously. Continuous monitoring solutions offered.

On-line Partial Discharge Testing: On-site PD measuring and analysis services for on-line diagnostic testing of transformers, MV and HV cables, and bushings.

Dielectric Spectroscopy: For detection of water treeing in XLPE and EPR cables and moisture presence in PILC cables.

On-site, in-situ Overhead Conductor Assessment:

LineVue® & JointVue
Transmission size: 15-45 mm OD, up to 765 kV live line
Distribution size: 6-19 mm OD, up to 120 kV live line
In-plant monitoring of steel core joints on stranding machines – JointVue technology

GIS Commissioning Services: Mobile AC 700 kV resonant test system (13nF at 700 kV, 52 nF at 350 kV).

Generator and Motor Lab and Field Services: Stator Bar/ Coil insulation Qualification: voltage endurance (IEEE 1043), thermal cycling (IEEE 1310), turn insulation testing (IEEE 522). Field diagnostic and condition assessment testing of generators and motors.

Mobile Test Equipment: 75 kV, 30 kV, and 20 kV AC test sets for MV cables and generator testing incl. full range of diagnostic services. Full Suite of Field Testing IR/PI, AC/DC over voltage, Partial Discharge, C&DF, TVA /Corona, EL-CID RSO.

High Voltage Motor and Generators: Inspection, Consultancy and root cause failure analysis services.

On-Site Commissioning & Maintenance Testing: Medium Voltage cables, GIS and metal clad switchgear using AC Hi-Pot and PD testing.

On-Site Condition Assessment Testing of overhead conductors using LineVue® technology

Lab Testing Services for Distributed Generation (DG):

Facility can test inverters and includes PV array simulators. Capabilities: Inverter efficiency and MPPT, power quality, Fault current contribution, anti-islanding, ride-through and other protection functions.

Conductor and tower vibration studies, field monitoring

GRIDSIM POWER LAB – COMING SOON



GRIDSIM Power Lab

Technical Laboratory Features

CHARACTERISTICS	VALUES
Power	Low to high power range; up to 12 MVA
Voltage	600V up to 34.5 kV
Frequency	45 TO 67 Hz grid simulator power supply
Test Bays	2 independent parallel circuits
DC Power	5 MW DC Power Supply
AC Resistive Load Bank DC Resistive Load Bank Capacitive Load Bank Inductive Load Bank	Available as needed
Ancillary Services	Instrumentation, data acquisition, strong floor, craning and rigging equipment
Onsite Technical Service & Support	Yes (Field Engineers available upon request)
International Standards Compliance	UL 1741 SA, IEEE 1547.1, CSA C22.2 No. 107.1 and IEC 62109-1 and -2, IEC 61683, others

Kinectrics is registered to ISO 9001 QA program and has accreditation for ISO17025 and many other QA programs.



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