

Standards Council of Canada

600-55 Metcalfe Street
Ottawa, ON K1P 6L5
Canada

Conseil canadien des normes

55, rue Metcalfe, bureau 600
Ottawa, ON K1P 6L5
Canada

SCOPE OF ACCREDITATION

**BC Hydro
POWERTECH LABS INC.
12388 88th Avenue
Surrey, BC
V3W 7R7**

Accredited Laboratory No. 576
(Conforms with requirements of CAN-P-1585, ISO/IEC 17025:2005)

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CLIENTS SERVED: All interested parties

FIELDS OF TESTING: Chemical/Physical, Electrical/Electronic, Mechanical/Physical

PROGRAM SPECIALTY AREA: Environmental

SCOPE ISSUED ON: 2017-10-03

ACCREDITATION VALID TO: 2021-10-02

CONSTRUCTION

Road and Railway & Civil Constructions:

Dams

USACE CERL TR 99/104 Greaseless Bushings for Hydropower Applications

ELASTOMERS AND PROTECTIVE AND OTHER COATINGS

Paints; Varnishes; Inks; Coatings; and Allied Products:

ASTM B117	Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM G154	Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials
ISO 9227	Corrosion tests in artificial atmospheres - Salt spray tests

ELECTRICAL PRODUCTS AND ELECTRONIC PRODUCTS

Communications Equipment and Systems:

Telecommunications Equipment

AeroMACS RCT WMF-T25-006-R010	WiMAX Forum® AeroMACS Radio Conformance Tests
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Components and Assemblies:

Insulators

ANSI C29.1	American National Standard for Electrical Power Insulators - Test Methods Only for: Clause 4.2 Low-Frequency Dry Flashover Voltage Tests Clause 4.3 Low-Frequency Wet Flashover Voltage Tests; Clause 4.4 Low-Frequency Dry Withstand Voltage Tests; Clause 4.5 Low-Frequency Wet Withstand Voltage Tests; Clause 4.7 Impulse Flashover Voltage Tests; Clause 4.8 Impulse Withstand Voltage Tests. Clause 4.9 Radio Influence Voltage
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Switches and Controls

ANSI/NEMA C37.54	Indoor Alternating Current High-Voltage Circuit Breakers Applied as Removable Elements in Metal-Enclosed Switchgear -Conformance Test Procedures Only for: Clause 3.5 Lightning Impulse Withstand Voltage Tests Clause 3.8 Load Current Switching Tests Clause 3.9 Short Time Current Carrying Tests
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ANSI/NEMA C37.55	Clause 3.10 Short-Circuit Current Tests Clause 6.2 Power Frequency Withstand Voltage Tests Switchgear - Medium Voltage Metal-Clad Assemblies - Conformance Test Procedures Only for: Clause 5.5.2 Power-Frequency Withstand Voltage Tests Clause 5.5.3 Lightning Impulse Withstand Tests Clause 5.8 Short-Time Withstand Current Test Clause 5.9 Momentary Withstand Current Test
ANSI/NEMA C37.57	Metal-Enclosed Interrupter Switchgear Assemblies - Conformance Testing Only for: Clause 4.5.2 Power-Frequency Withstand Voltage Tests Clause 4.5.3 Lightning-Impulse Withstand Test Clause 4.8 Short-Time Withstand Current Test Clause 4.9 Momentary Withstand Current Test
ANSI/NEMA C37.58	Indoor AC Medium-Voltage Switches for Use in Metal-Enclosed Switchgear - Conformance Test Procedures Only for: Clause 4.5 Lightning Impulse Withstand Test Clause 4.7.2 Momentary Withstand Current Test Clause 4.7.3 Short-Time Withstand Current Test Clause 4.9 Load-Switching Current Test (If Rated)
CSA C22.2 No. 31	Switchgear assemblies Only for: Clause 6.1 Temperature Clause 8.5.1 Dielectric strength tests Clause 8.5.2 Impulse tests Clause 8.5.3 Corona-extinction tests Clause 8.5.4 Short-circuit withstand rating
CSA-C22.2 No. 253/ UL 347	Medium-Voltage AC Contactors, Controllers, and Control Centers Only for: Clause 6.2.201 Impulse withstand tests Clause 6.2.202 Power-frequency voltage withstand tests Clause 6.6 Short-Time, Momentary and Peak Withstand Current Bus Tests Clause 6.102 Make and Break Capacity Test Clause 6.103 Overload Test Clause 6.104 Fault Interruption Test Clause 6.202 Short Time Capability
IEC 62271-111/ IEEE C37.60	High-voltage switchgear and controlgear - Part 111: Automatic circuit & reclosers and fault interrupters for alternating current systems up to 38 kV Only for: Clause 6.2 Dielectric tests Clause 6.4 Measurement of the resistance of circuits Clause 6.5 Temperature-rise tests Clause 6.6 Short time withstand current and peak withstand current tests Clause 6.101 Line charging current and cable charging current interruption tests Clause 6.102 Making current capability

	Clause 6.103 Rated symmetrical interrupting current tests
	Clause 6.106 Partial discharge (corona) tests
	Clause 6.111.3 Simulated surge arrester operation test
	Clause 6.112 Condition of recloser/FI after each test of 6.101, 6.103 and 6.104
IEEE 386	IEEE Standard for Separable Insulated Connector Systems for Power Distribution Systems above 600 V Only for: Clause 7.6 Short-time current test Clause 7.7 Switching test Clause 7.8 Fault-closure test
IEEE C37.09	Standard Test Procedure For AC High-Voltage Circuit Breakers Rated On A Symmetrical Current Basis Only for: Clause 4.1 Maximum voltage tests Clause 4.2 Power Frequency Clause 4.4.3 Power Frequency Withstand Voltage Tests Clause 4.4.4 Full-wave lightning impulse withstand voltage tests Clause 4.4.5 Impulse voltage test for interrupters and resistors Clause 4.4.6 Chopped wave lightning impulse withstand voltage tests Clause 4.4.7 Switching impulse voltage withstand tests Clause 4.5 Standard operating duty (standard duty cycle) Clause 4.6 Interrupting time Clause 4.7 TRV Clause 4.8 Short-circuit current interrupting Clause 4.9.1 Load current switching test conditions Clause 4.9.2 Load current endurance switching test Clause 4.12 Out-of-phase switching current
IEEE C37.09a	Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis Amendment 1 - Capacitance Current Switching Only for: Clause 4.10 Capacitance current switching tests
IEEE C37.20.2	Standard for Metal-Clad Switchgear Only for: Clause 6.2.1 Dielectric tests Clause 6.2.3 Momentary withstand current Clause 6.2.4 Short-time withstand current Clause 6.2.5 Auxiliary equipment primary disconnecting device momentary current withstand test
IEEE C37.20.3	Standard for Metal-Enclosed Interrupter Switchgear Only for: Clause 6.2 Dielectric tests Clause 6.2.3 Short-time withstand current Clause 6.2.4 Momentary withstand current Clause 6.14.1 Test for bus-bar insulation
IEEE C37.20.4	IEEE Standard for Indoor AC Switches (1 kV to 38 kV) for Use in Metal-Enclosed Switchgear Only for: Clause 6.6 Short-time withstand current and peak withstand current (formerly momentary) tests Clause 6.13 Fault-making test Clause 6.14 Load-switching current test

	Clause 6.15 Cable-charging current switching test (optional)
	Clause 6.16 Unloaded-transformer switching test (optional)
	Clause 6.17 Direct-acting fuse-tripping current test (optional)
IEEE C37.20.7	IEEE Guide for Testing Metal-Enclosed Switchgear Rated Up to 38 kV for Internal Arcing Faults Only for: 5 Arcing Fault
IEEE C37.23	Metal-Enclosed Bus Only for: Clause 6.2.1.1 Power Frequency Withstand Voltage Tests Clause 6.2.1.2 Lightning impulse withstand voltage tests Clause 6.2.1.3 Test for bus-bar insulation, bus-joint insulation, and bus-tap insulation Clause 6.2.4 Short-time withstand current
IEEE C37.30.1	Standard Requirements for AC High-Voltage Air Switches Rated Above 1000V Only for: Clause 8.1.1 Power frequency withstand voltage tests Clause 8.1.2 Lightning impulse dry withstand voltage tests Clause 8.1.3 Power frequency and lightning impulse open gap withstand voltage tests Clause 8.1.4 Switching impulse voltage test of switches rated 362kV and above Clause 8.3 Short-time Withstand Current Tests Clause 8.4 Fault-making current test Clause 8.7 Corona tests
IEEE C37.41	ANSI/IEEE Standard Design Tests for High-Voltage (> 1000V) Fuses and Accessories Only for: Clause 8.2 Power-frequency dry-withstand voltage tests Clause 8.3 Power-frequency wet-withstand voltage tests on outdoor devices Clause 8.5 Lightning impulse-withstand voltage tests Clause 9 Interrupting tests Clause 11 Temperature-rise tests Annex A.4 Short-time withstand current tests for disconnecting switches Annex A.5 Load-break tests
IEEE C37.42	IEEE Standard Specifications for High-Voltage (> 1000 V) Expulsion-Type Distribution-Class Fuses, Fuse and Disconnecting Cutouts, Fuse Disconnecting Switches, and Fuse Links, and Accessories Used with These Devices Only for: Clause 3.3.1 Dielectric tests Clause 3.3.2 Interrupting [breaking] Clause 3.3.5 Short-time current tests for disconnecting cutouts
IEEE C37.45	IEEE Standard for Design Test Specifications for High Voltage (> 1000 V) Distribution Class Enclosed

	Single-Pole Air Switches Only for: Clause 8.1 Dielectric tests Clause 8.3 Short-time current tests
IEEE C37.46	Specifications for High-Voltage (>1000 V) Expulsion and Current-Limiting Power Class Fuses and Fuse Disconnecting Switches Only for: Clause 4.1 Dielectric tests Clause 4.2 Interrupting [breaking]
IEEE C37.66	IEEE Standard Requirements for Capacitor Switches for AC Systems (1 kV to 38 kV) Only for: Clause 6.2 Insulation (dielectric) tests Clause 6.3 Short-time current tests Clause 6.4 Rated fault-making current tests Clause 6.5 Operating duty tests
IEEE C37.74	Standard Requirements for Subsurface, Vault, and Pad-Mounted Load-Interrupter Switchgear and Fused Load-Interrupter Switchgear for Alternating Current Systems up to 38 kV Only for: Clause 6.7.2 Dielectric tests Clause 6.7.3 Continuous current test Clause 6.7.4 Short-circuit withstand current tests Clause 6.7.5 Switching tests Clause 6.7.6 Thermal runaway test Clause 6.7.7 Partial discharge tests Clause 6.7.8 DC withstand voltage test
IEEE/IEC 62271-37-013	IEEE/IEC International Standard for High-voltage switchgear and controlgear -- Part 37-013: Alternating-current generator circuit-breakers Only for: Clause 6.2.2.1 Rated power frequency withstand voltage (dry) Clause 6.2.6.2 Lightning impulse voltage test

Transformers

IEEE C57.12.90	Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers Only for: Clause 5 Resistance measurements Clause 6 Polarity and phase-relation tests Clause 7 Ratio tests Clause 8 No-load losses and excitation current Clause 9 Load losses and impedance voltage Clause 10 Dielectric tests Clause 12 Short circuit tests
IEEE C57.12.91	Standard Test Code for Dry-Type Distribution and Power Transformers Only for: Clause 5 Resistance measurements Clause 6 Polarity and phase relation tests Clause 7 Ratio tests Clause 8 No load losses and excitation current

	Clause 9 Load losses and impedance voltage
	Clause 10 Dielectric tests
	Clause 12 Short circuit tests
IEEE C57.13	Standard Requirements for Instrument Transformers
	Only for: Clause 8.2 Impedance excitation, and composite error measurements
	Clause 8.3 Polarity
	Clause 8.5 Resistance measurements
	Clause 8.6 Partial discharge measurement
	Clause 9.3 Impedance measurements
	Clause 9.4 Polarity
	Clause 10.2 Impedance measurements
	Clause 10.3 Polarity
	Clause 11.4 Partial discharge measurement

ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY

Environmental

Oil

(Total PCB in Oil)

ACTP-5	PCB in Waste Liquids by Gas Chromatography
ASTM D4059	Standard Test Method for Analysis of Polychlorinated Biphenyls in Insulating Liquids by Gas Chromatography

Soil/Sediment

(PCB in Soil)

ACTP-6	PCB Content in Soil Samples by Gas Chromatography
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Water (Inorganic)

ACTP 8	pH Value (APHA 4500-H+)
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Water (Organic)

(PCB in Water)

ACTP-7	PCB in Aqueous Samples by Gas Chromatography
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Occupational Health and Safety:

Asbestos

ACTP 10 Asbestos (Bulk) by PLM (NIOSH 9002, EPA 600/R-93/116 Standard, Clauses 2.1, 2.2 & 2.3)

MACHINERY

Transportation, Agricultural and Construction Vehicles and Components:

Automobiles, Light Trucks, Vans & Trailers

ANSI HGV 2 Compressed hydrogen gas vehicle fuel containers
Only for: Clause 11.3 Leak Test
Clause 12.4 Burst Test
Clause 12.5 Cycle Test
Clause 18.3.2 Ambient Cycling Test
Clause 18.3.3 Environmental Test
Clause 18.3.4 Extreme Temperature Cycling
Clause 18.3.5 Hydrostatic Burst Test
Clause 18.3.6 Flaw Tolerance Test
Clause 18.3.7 Drop Test
Clause 18.3.8 Fire Test
Clause 18.3.9 Accelerated Stress Rupture Test
Clause 18.3.10 High Strain Rate Impact Test
Clause 18.3.11 Permeation Test
Clause 18.3.12 Boss Torque Test
Clause 18.3.13 Hydrogen Gas Cycling Test
Clause 18.3.14 Leak Before Break Test
Clause 18.5.2 Ambient Cycling Test
Clause 18.5.3 Hydrostatic Burst Test
Clause 18.5.4 Container test for performance durability
Clause 18.5.5 High strain rate impact test
Clause 18.5.6 Permeation test
Clause 18.5.7 Container test for expected on-road performance

ANSI NGV 2 Compressed natural gas vehicle fuel containers
Only for: Section 9.3 Leak Test
Section 10.4 Burst Test
Section 10.5 Cycle Test
Section 16.3 Ambient Cycling Test
Section 16.4 Environmental Test
Section 16.5 Extreme Temperature Cycling
Section 16.6 Hydrostatic Burst Test
Section 16.7 Composite Flaw Tolerance Test
Section 16.8 Drop Test
Section 16.9 Bonfire Test
Section 16.10 Accelerated Stress Rupture Test
Section 16.11 Penetration Test

	Section 16.12 Permeation Test
	Section 16.13 Natural Gas Cycling Test
	Section 16.14 Leak Before Break Test
ANSI NGV3.1/ CSA 12.3	Fuel System Components for Natural Gas Powered Vehicles
	Only for: Clause 2.2 Hydrostatic Strength
ANSI/CSA HGV 3.1	Fuel system components for compressed hydrogen gas powered vehicles
	Only for: Clause 5.3 Hydrostatic strength
	Clause 5.4 Leakage
	Clause 5.5 Excess torque resistance
	Clause 5.6 Bending moment
	Clause 5.7 Continuous operation
	Clause 5.8.1 Salt spray exposure
	Clause 5.9 Ultraviolet resistance of external surfaces
	Clause 5.12 Abnormal electrical voltages
	Clause 5.15 Insulation resistance
	Clause 5.16 Pre-cooled hydrogen exposure
	Clause 8.4.1 Leakage
	Clause 8.4.2 Continuous operation
	Clause 10.4.1 Continuous operation
	Clause 10.4.2 Operating torque
	Clause 11.4.1 Automatic valve
	Clause 11.4.2 Automatic container valve
	Clause 13.4.3 Insulation resistance
	Clause 14.4.1 Hydrostatic strength
	Clause 14.4.2 External leakage
	Clause 14.4.3 Continuous operation
	Clause 14.4.4 Pressure impulse
	Clause 15.4.1 Hydrostatic strength
	Clause 15.4.2 Continuous operation
	Clause 15.4.3 Opening and reseating characteristics
CSA B51 Part 2	High-Pressure Cylinders for the On-board Storage of Natural Gas as a Fuel for Automotive Vehicles
	Only for: Clause 14.12 Hydrostatic Pressure Burst Test
EC 79	Implementing Regulation (EC) No 79/2009 of the European Parliament and of the Council on type-approval of hydrogen-powered motor vehicles
	Annex IV,
	Only for: Part 2, Para. 4.2.1 Burst test
	Part 2, Para. 4.2.2 Ambient temperature pressure cycle test
	Part 2, Para. 4.2.3 Leak-before-break (LBB) performance test
	Part 2, Para. 4.2.4 Bonfire test
	Part 2, Para. 4.2.5 Penetration test
	Part 2, Para. 4.2.6 Chemical exposure test
	Part 2, Para. 4.2.7 Composite flaw tolerance test
	Part 2, Para. 4.2.8 Accelerated stress rupture test
	Part 2, Para. 4.2.9 Extreme temperature pressure cycle test
	Part 2, Para. 4.2.10 Impact damage test

	<p>Part 2, Para. 4.2.11 Leak test Part 2, Para. 4.2.12 Permeation test Part 2, Para. 4.2.13 Boss torque test Part 2, Para. 4.2.14 Hydrogen gas cycling test Part 3, Para. 4.2.1 Corrosion resistance test (Test a only) Part 3, Para. 4.2.2 Endurance Part 3, Para. 4.2.3 Hydraulic pressure cycle test Part 3, Para. 4.2.4 Internal leakage test Part 3, Para. 4.2.5 External leakage test</p>
ECE R110	<p>Uniform provisions concerning the approval of: I. Specific components of motor vehicles using compressed natural gas (CNG) and/or liquefied natural gas (LNG) in their propulsion system II. Vehicles with regard to the installation of specific components of an approved type for the use of compressed natural gas (CNG) and/or liquefied natural gas (LNG) in their propulsion system Annex 3A, Appendix A Only for: Para. A.6 Leak Before Break Test Para. A.7 Extreme Temperature Cycling Para. A.10 Leak Test Para. A.12 Hydrostatic pressure burst test Para. A.13 Ambient temperature pressure cycling Para. A.14 Acid environment test Para. A.15 Bonfire test Para. A.16 Penetration tests Para. A.17 Composite flaw tolerance tests Para. A.19 Accelerated stress rupture test Para. A.20 Impact damage test Para. A.21 Permeation test Para. A.25 Boss torque test Para. A.27 Natural gas cycling test</p>
ECE R134	<p>Uniform provisions concerning the approval of motor vehicles and their components with regard to the safety-related performance of hydrogen-fuelled vehicles (HFCV) Only for: Para. 5.1.1 Baseline initial burst pressure Para. 5.1.2 Baseline initial pressure cycle life Para. 5.2 Verification tests for performance durability Para. 5.3 Verification test for expected on-road performance Para. 5.4 Verification test for service terminating performance in fire Para. 9.3.2.1 Rupture test in batch testing Para. 9.3.2.2 Ambient temperature pressure cycling test in batch testing Annex 3, Para. 2 Test procedures for baseline performance metrics Annex 3, Para. 3 Test procedures for performance durability</p>

Annex 3, Para. 4 Test procedures for expected on-road performance
Annex 3, Para. 5 Test procedures for service termination performance in fire
Annex 4, Para. 1.1 Pressure cycling test
Annex 4, Para. 1.2 Accelerated life test
Annex 4, Para. 1.3 Temperature cycling test
Annex 4, Para. 1.4 Salt corrosion resistance test (pH 4.0 only)
Annex 4, Para. 1.7 (a) Drop test
Annex 4, Para. 1.8 Leak test
Annex 4, Para. 1.9 Bench top activation test
Annex 4, Para. 1.10 Flow rate test
Annex 4, Para. 2.1 Hydrostatic strength test
Annex 4, Para. 2.2 Leak test
Annex 4, Para. 2.3 Extreme temperature pressure cycling test
Annex 4, Para. 2.4 Salt corrosion resistance test (pH 4.0 only)
Annex 4, Para. 2.7 Electrical tests
Annex 4, Para. 2.10 Pre-cooled hydrogen exposure test
Global technical regulation on hydrogen and fuel cell vehicles
Part II
Only for: Para. 5.1.1.1 Baseline initial burst pressure
Para. 5.1.1.2 Baseline initial pressure cycle life
Para. 5.1.2 Verification tests for performance durability
Para. 5.1.3 Verification test for expected on-road performance
Para. 5.1.4 Verification test for service terminating performance in fire
Para. 6.2.2.1 Burst test (hydraulic)
Para. 6.2.2.2 Pressure cycling test (hydraulic)
Para. 6.2.3 Test procedures for performance durability
Para. 6.2.4 Test procedures for expected on-road performance
Para. 6.2.5 Test procedures for service terminating performance in fire
Para. 6.2.6.1.1 Pressure cycling test
Para. 6.2.6.1.2 Accelerated life test
Para. 6.2.6.1.3 Temperature cycling test
Para. 6.2.6.1.4 Salt corrosion resistance test (pH 4.0 only)
Para. 6.2.6.1.7 (a) Drop test
Para. 6.2.6.1.8 Leak test
Para. 6.2.6.1.9 Bench top activation test
Para. 6.2.6.1.10 Flow rate test
Para. 6.2.6.2.1 Hydrostatic strength test
Para. 6.2.6.2.3 Extreme temperature pressure cycling test
Para. 6.2.6.2.4 Salt corrosion resistance test (pH 4.0 only)
Para. 6.2.6.2.7 Electrical tests
Para. 6.2.6.2.10 Pre-cooled hydrogen exposure test

