

KYMCO LITHIUM BATTERY PACK.

Meet the following standard so are safe to transport.

UN/DOT 38.3 TESTING CAPABILITIES

Eight of the UN 38.3 test requirements applicable to the transportation of lithium batteries include:

T1 – Altitude Simulation (Primary and Secondary Cells and Batteries). Low pressure testing that simulates unpressurized airplane cargo area at 15,000-meter altitude. After storing batteries at 11.6kPa for >6 hours, these criteria shall be met: no mass loss, leaking, venting, disassembly, rupture or fire, and voltage within 10% of pre-test voltage.

T2 – Thermal Test (Primary and Secondary Cells and Batteries). Test covers changes in temperature extremes from -40C to +75C. Batteries are stored for 6 hours at -40C (12 hours for large cells/batteries), then 6 hours at +75C (12 hours for large cells/batteries), for a total of 10 cycles.

T3 – Vibration (Primary and Secondary Cells and Batteries). Test simulates vibration during transportation. Test is a Sine Sweep: 7Hz – 200Hz – 7Hz in 15 Minutes; 12 Sweeps (3 hours); 3 mutually perpendicular axes.

T4 – Shock (Primary and Secondary Cells and Batteries). Test also simulates vibration during transportation. Test is a Half-Sine pulse: 150G/6ms for small cells/batteries; 50G/11ms for large cells/batteries; 3 pulses per direction; 6 directions (+/-z, +/-x, +/-y).

T5 – External Short Circuit (Primary and Secondary Cells and Batteries). This test simulates an external short to the terminals of the cell or battery. At temperature of +55C, apply short circuit (<0.1ohm) across terminals. Maintain at least an hour after sample temperature returns to +55 +/-2°C. Pass criteria are: Case temperature does not exceed +170°C and no disassembly, rupture, or fire within 6 hours of test. Fuse, current limiting circuit, and venting mechanism activation are allowable.

T6 – Impact (Primary and Secondary Cells). This test is only applicable to primary and secondary cells. For cylindrical cells >20mm diameter, it simulates impact to case of cell.

T7 – Overcharge (Secondary Batteries). This test is for secondary or rechargeable batteries only. It simulates an overcharge condition on a rechargeable battery: 2x the manufacturer's recommended charge current for 24 hours. Then battery shall be monitored for 7 days for fire or disassembly.

T8 – Forced Discharge (Primary and Secondary Cells). This testing simulates a forced discharge condition for primary and secondary cells only