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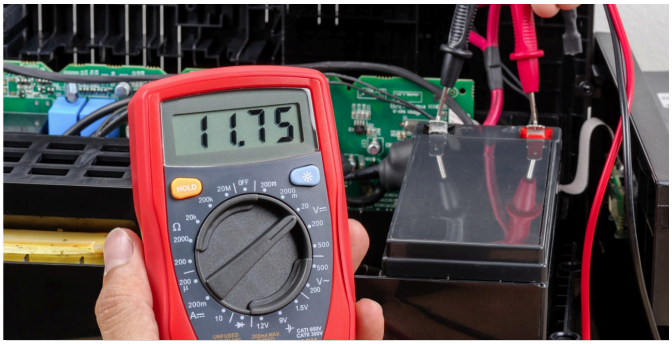
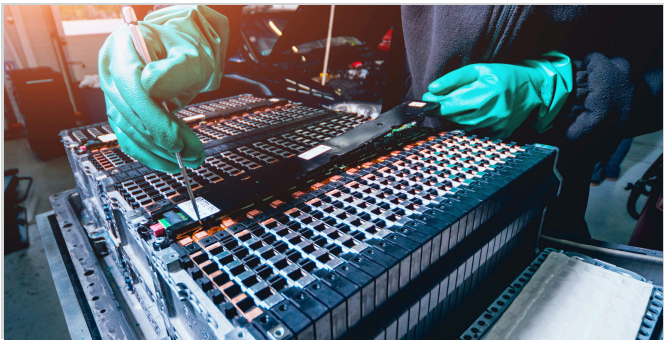
Battery Testing Facility





TUV India (TÜV NORD GROUP) as leading Inspection, Certification and Testing organization has established state-of-the-art Electrical, Electronics & Industrial Machinery Product Testing Laboratories. Our domain experts develop truly excellent solutions making your business more secure, enhancing the quality of your products and services ensuring safety and compliance.

Our services offer you important gains in safety, security and quality for technology, processes, product, business decisions and activities. With our expertise in respective local and international standards, we provide single-window solutions to strengthen your local marketplaces. Thus we partner you in your endeavor to achieve prominent position within the competitive market.

Our state-of-the-art facility is equipped with world class infrastructure, competent human resources, high-end test equipment and instruments, latest generation devices to conduct accurate analyses and tests for Safety and Performance as per standard method and deliver reliable results. We also provide both in-house and on-site facility which further provides flexibility in terms of meeting timeline in the course of an overall product development lifecycle.

Solutions:

- Lead-Acid Batteries used in Automotive, UPS/ Inverter, Emergency Lighting, Energy Storage Systems etc.
- Nickel-Cadminum Batteries (Ni-Cd) used in Toys, Solar Garden Lighting, Aircraft Starting, Standby
- Power etc. Nickel-Metal Hydride Batteries (Ni-MH) used in Plug-in Hybrid Vehicles, Consumer Electronics etc.
- Lithium Ion Batteries (Li-ion) used in Electric Vehicles (EV), Mobile Phones, Portable Consumer Electronics, Laptops, Medical Devices, Communication Equipments, Thermometers etc

Major Applicable Test In Battery:

- Crush Test
- Shock Test
- Storage Test
- Capacity Test
- Vibration Test
- Free Fall Test
- Efficiency Test
- Corrosion Test
- Life Cycle Test
- Water Bath test
- Water Loss Test
- Overcharge Test
- Thermal Abuse Test
- Endurance cycle Test

- Charge retention Test
- Low Temperature Test
- High Temperature Test
- Water consumption Test
- Charge acceptance Test
- Insulation Resistance Test
- Charging-Discharging Test
- Cranking performance Test
- AC Internal Resistance Test
- Test for polarity and short circuit Test

List of Applicable Standards

- UN 38.3/ IEC 62281: Safety of primary and secondary lithium cells and batteries during transport
- IS 10893 : Sealed Nickel Cadmium Button Type Rechargeable Single Cells
- IS 1651 : Stationary cells & batteries lead acid type with tubular Positive Plates
- EN 50342 : Lead Acid Starter batteries - Part 1 General Requirements and method of test
  IS 7372 : Lead acid storage batteries for motor vehicles
- IEC 60254-1/ IS 5154-1: Lead Acid Traction Batteries Part 1 – General Requirements
- IEC 60254-2/ IS 5154-2: Lead Acid Traction Batteries Part 2 – Dimension of cells, terminal & Marking of polarity on Cells
- IS 14257: Lead acid storage battery for motor vehicles with light weight & high cranking performance
- IEC /EN 60896-11: Stationary Lead Acid Batteries - Vented Types
- IEC /EN 60896-21& 22 / IS 15549: Stationary Lead Acid Batteries - Valve Regulated Types
  IS 10918: Specification for vented type Nickel Cadmium Battery
- IEC 62133-1 / IS 16046-1 Secondary Cells and Batteries Containing Alkaline or Other Non-Acid
- Electrolytes Safety Requirements for Portable Sealed Secondary Cells and for Batteries Made from Them for Use in Portable Applications Part 1 Nickel Systems
- IEC 62133-2 / IS 16046-2 Secondary Cells and Batteries Containing Alkaline or Other Non-Acid
- Electrolytes Safety Requirements for Portable Sealed Secondary Cells and for Batteries Made from Them for Use in Portable Applications Part 2 Lithium Systems
- IEC 61951-1 / IS 16048-1 Secondary cells and batteries containing alkaline or other non-acid electrolytes – Portable sealed rechargeable single cells – Part 1: Nickel-cadmium
- IEC 61951-2 / IS 16048-2 Secondary cells and batteries containing alkaline or other non-acid electrolytes – Portable sealed rechargeable single cells – Part 2: Nickel-metal hydride
- IEC 61960-3 / IS 16047-3 Secondary cells and batteries containing alkaline or other non-acid electrolytes – Secondary lithium cells and batteries for portable applications – Part 3: Prismatic and cylindrical lithium secondary cells, and batteries made from them
- BS EN IEC 61427 / IS 16270: Secondary Cells & Batteries for Renewable Energy Storage-General Requirements and test- Part 1: Photovoltaic off-grid application

In-House Battery Testing Facilities:

Equipment	Specifications
Battery Testing System BTS 4000 Series	– 5V, 6A Charging / Discharging – No of Circuits: 8 Circuits – Charge Voltage: 0 to 5V – Discharge Voltage: 5 to 0V – Charge Current : 100mA to 5A – Discharge Current: 5A to 100mA – Accuracy Current / Voltage: +/- 0.05% of full scale – Switching time between Charging & Discharging: 1 ms
Universal Battery Tester	– 18V, 25A Charging/ Discharging – No of Circuits: 6 Circuits – Charge Voltage: 0 to 18V – Discharge Voltage: 15 to 0V – Current: 0.25 to 25A – Accuracy Current / Voltage: +/- 0.05% of full scale

Equipment	Specifications
High Rate Discharger	– Switching time between Charging & Discharging: 20 ms – Temperature Measuring Range: -40°C to 100 °C – Data Logger: 36 Channel – Combination of 6 parallel circuits for higher rating of charging & discharging of Cell/Battery
IGBT Regenerative, Battery Pack Tester	– IGBT Regenerative, Battery Pack Tester – DC output Voltage: 400 VDC /Circuit – DC Output Current: 60 ADC /Circuit – DC Output Power:24KW / Circuit – No. of circuits (Channels):7 Circuits – Switching time between charge to discharge: 50 m sec – Combination of 7 parallel circuits for higher rating of charging & discharging of Battery Pack
Water Bath	– Maximum Temperature: Ambient to 95°C – Dimension: 60cm(L)x35cm(W)x25cm (D) – Max weight: 100 Kg
Thermal Abuse Chamber (E0 300)	– Temperature rate: 5°C /min ± 2°C/min – Temperature range: 10°C /min to 150 ° C /min ± 2°C /min – Working Cabinet Dimension: W 650 X D 600 X H 800 mm

Equipment	Specifications
Low Pressure Cell Chamber	– Vacuum chamber with ambient temperature : 20degC ± 5 °C /min – Sealed chamber, Pressure Requirement: Equal to (0-15 KPa) (This simulates altitude of 15240m) This constant pressure will maintain for 6Hours – Chamber external size: W300 X D300 X H300 (mm)
Crush Test Chamber	– Force : 0-15 kN±0.78 kN – Fire Detection and Suppression system with audio alarm – Chamber Workspace: W500 X D500 X H500 (mm)
Thermal Cycling Chamber	– Dimension: 1000mmX1000mmX1000mm – Triple layer walled chamber Average Rate Of Heating : 2°C/ minute Average Rate Of Cooling :2 °C/ minute – Temperature Range : -40 to 180 ° C (75°C - 4hrs, 20° C-2hrs, -20° C4hrs) all temperature vary with in 30min after completion of one temperature cycle
Measurement of Internal Resistance For Coin Cells	– Digital Multimeter With resistance ± 1000 VDC rated input voltage ± 1000 VDC max. rated voltage to earth – 3 mΩ (max. display 3.1000 mΩ, resolution 0.1 µΩ) to 3 kΩ (max. display 3.1000 kΩ, resolution 0.1 Ω) – Testing source frequency: 1 kHz ±0.2 Hz

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About Us:

TUV India Pvt. Ltd. (TÜV NORD GROUP) is a customer-focused, innovative, and independent, technical, quality & safety services organization, dedicated to providing future-proof solutions through technological excellence for the success of its customers with the highest level of integrity. With a presence at over 40 strategic locations in India; a branch office in Sri Lanka and Bangladesh; state-of-the-art laboratories at Pune, Bengaluru, Noida and Jamnagar; 100 important countries worldwide and through digital means, we are always connected to you, our esteemed customer, anywhere, anytime.

We are proud to provide increasing levels of services to the best known, largest global and national companies as well as medium and small industries in diverse sectors like Oil & Gas,
Petro-chemical, Nuclear, Renewables, Infrastructure, Food, Power, Manufacturing, Chemicals, Pharma, Paper, Automobiles, Railways, Aerospace, Defence, IT, Health, Hospitality, Retail, etc.

Over 1500 competent and experienced TUV India experts spread across India and over 14000 TUV NORD experts all over the world, enthusiastically support our clients by providing value-added services in Industry Inspection, European / International Approvals, Management System & IT Certification, Sustainability, Energy Audit, Water Audit, Carbon Services, Building Infrastructure & PMC, Renewable Energy, Food & Packaging Testing, Food Certification & Inspection; Testing of restricted and banned chemicals in Automotive and Electrical & Electronics components and other regulated industries, Product Testing – Electricals, Electronics and Industrial Machinery; Product Certification; Petroleum, Chemicals & Gas Cargo Inspection; Petroleum, Chemicals & Gas Testing; Railway Technology; Engineering, Safety Studies, and knowledge enhancing training programs under TUV India Training Academy.

Our Services Portfolio:

- Industrial Inspection
- Management Systems & IT Certification
- Building, Infrastructure and Project Management
- Renewable Energy
- Railway Technology
- Food Certification and Inspection
- Petroleum, Chemicals and Gas Cargo Insepction
- Product Certification
- Product Testing for Electronics, Electricals, Machinery & Industrial, Automotive Batteries
- Food and Packaging Testing
- Advanced Chemical & Material Testing
- Petroleum, Chemical & Gas Testing
- Training Academy

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