



# SAFETY & HOMOLOGATION LABORATORY

(Component Certification Laboratory)

**Vision Zero for Sustainable Road Safety**



**Laboratory Accredited as per NABL ( ISO / IEC 17025 )**

THE AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA

# ABOUT SAFETY AND HOMOLOGATION LABORATORY

Safety & Homologation Laboratory (SHL) performs multi-faceted activities covering certification, homologation, localization and development for auto and ancillary industries in India and around the world.

“Mission Atmanirbhar Bharat” Assured partnering with Indian suppliers in their product development, Design validation quality Assessment and Product Conformity

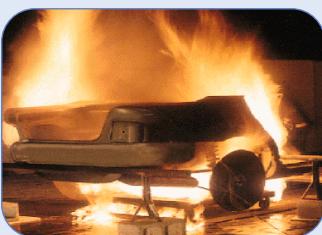


SHL provides services & support for certification of safety components and sub-systems as per National and International standards addressing safety and environmental performances. Dedicated team and skilled engineering professionals use state-of-the-art facilities to provide prompt and value added services for certification, developmental & benchmarking projects. SHL can support in new product development for OEMs and auto components and also assist for vendor qualification program.

## Component Level Certification



Tyres and Wheel rims



Fire Test for Batteries & Fuel Tanks



Alternate Fuel Components



Lighting & Signalling Devices  
and many more...

## Vehicle Level Installation Tests for All Vehicle Categories



FDAS / FDSS



Ambulance Testing



Drivers Field Vision Test



Reverse Park Assist Test  
and many more...

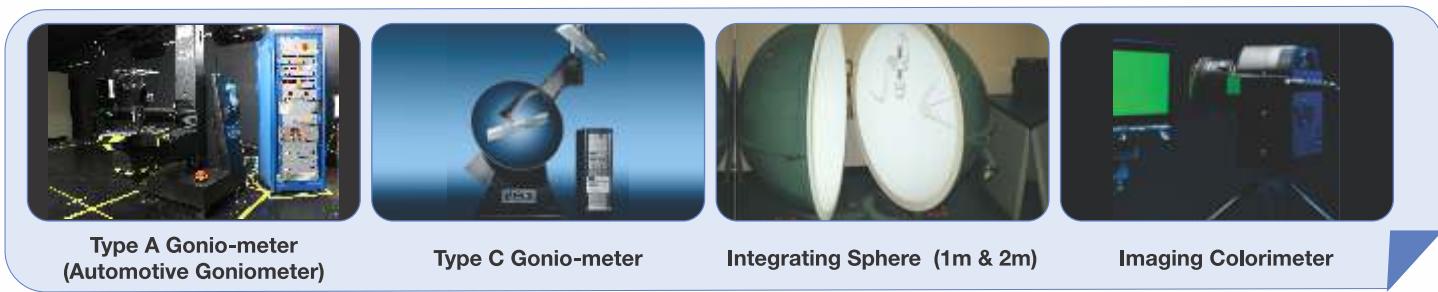
## BIS ACCREDITATION (to assist Quality Control Order)

- Safety Glass as per IS 2553 (Part 1): 2018 – General Purpose and IS 2553 (Part 2):2019 – Road Transport, IS:14900:2018 & IS:2835:1987
- Automotive Vehicles – Tyres as per IS 15627, IS 15633 & IS 15636
- Bicycle reflectors as per IS/ISO 6742-2-2015
- Wheel rims as per IS 9436 / IS 9438 / IS 16192 Part 1, 2 & 3



## PHOTOMETRY

- Complete solution for testing & certification of Light and Light Signaling Devices, Retro Reflectors, Reflective Tapes, Warning Triangles, Rear Marking Plates & HSRP according to National & International standards such as AIS, ECE, EEC, ADR, SANS etc.
- State of the art facility for Testing & Certification of general lighting components such as indoor & outdoor lights, streetlights, flood lights etc. to support general lighting industry for ISI marking and export. Useful for measurements required in case of Design and Development, Production and Quality control of various types of LEDs, OLEDs and Luminaries
- Enhance facility of Imaging Colorimeter based on CCD camera technology that provides consolidated solution for chromaticity and Luminance measurement of Vehicle Instrument Clusters, Automotive Infotainment Displays, Avionics, HUDs etc
- Preferred laboratory for export homologation testing by TUV, BV, IDIADA, VCA etc.
- Collaboration with international ISO / IEC 17025 accredited labs such as TUV -Germany, Dekra – Netherlands, LTIK – Germany and FAKT – Italy for Indian homologation services



Type A Goniometer  
(Automotive Goniometer)

Type C Goniometer

Integrating Sphere (1m & 2m)

Imaging Colorimeter

**Capabilities** State-of-the art equipments such as Goniophotometer, Spectroradiometer, Integrating Sphere, Luminance meter etc. which can measure

- Luminous intensity [cd]
- Illuminance – [lx]
- Luminance [cd/m<sup>2</sup>]
- CIE coordinates/ color temperature
- Luminous flux [lm]
- CIL (Coefficient Luminous Intensity) [mcd/lx]
- Light distribution and calculation in form of ISO-LUX diagram
- Night Driving Simulation through Lucid Drive
- Uniformity verification of Displays
- Testing of HUD (Head-up displays) in vehicles

## Testing of Non - Automotive Components

- Road Signages Test as per IRC no. 79
- LED Destination Board
- Road signs and Road studs
- Safety Jackets with Retro Reflective Tape
- Airport/Aircraft /Highway application lamps
- Tunnel Lighting
- Taxi Lights



## CENTRE OF EXCELLENCE FOR AUTOMOTIVE TYRES AND WHEELS

Highly accurate State of Art temperature controlled Tyre Rolling resistance (RR) test machine which can measure RR up to 15 N/KN. Machine can test tyre upto max load of 8000 kg and max speed 200 kmph with adjustable initial slip and camber angles for tyre development.

The Centre of Excellence for Automotive Tyres & Wheels is a premier lab in India Providing RR aligned to European Reference Lab ARAI has generated database of 80 + popular tyres used in India market. This database can be beneficial for regulators, vehicle manufacturers and tyre manufacturers.



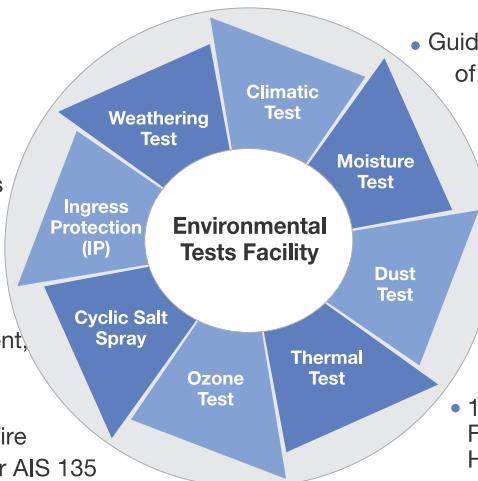
## New Facility

IPX9K is the highest rating for water ingress protection as per IEC 60529 and ISO 20653. Products under test is subjected to high pressure (8000 – 10000 KPa), high temperature (+80°C) and water jets at a flow rate of 14 – 16 L/min.



## DEVELOPMENTAL TESTING

- Radial and Cornering fatigue tests for Wheel rims
- Tyre Sealant Test
- Tyre durability at elevated temperatures
- Cold startability assessment of engines & vehicles along with Data Acquisition system for High Current and RPM
- Functional evaluation in sub-zero conditions for non-automotive equipment, e.g. X-ray machines, Air compressors, Fuel pumps
- SHL offers fire testing services for bus fire detection & suppression systems as per AIS 135 (India specific requirement)



- Guided drop test from a height of 9m & drop weight of 500kg for crash performance characterization
- Mechanical durability test at defined temperatures
- Evaluation of components under controlled environment stresses such as Vibration, Thermal, Ozone, Cyclic Salt spray, Ingress Protection (IP) test etc.
- Weathering tests for coated, textile, painted components and polymers
- 96 channel Engine Temperature Mapping using by welding Ktype thermocouples
- 10T drop facility with remote release mechanism, Furnace with a heating capacity up to 1100°C capacity, Hydro-pressure vessel for pressurization up to 20 bar
- Door slam durability testing

## Environmental Test Facilities



Weatherometer



Cyclic Corrosion Facility



Climatic Chambers



Walk-in Hot & Cold Chamber

## Upcoming Facilities

### Camera Monitoring System (CMS)

CMS offers the possibility of replacing conventional interior as well exterior mirrors by displaying Driver's Rear View Mirror on monitor mounted inside the vehicle, thus implementing new design concepts with aerodynamic advantages.



### Cylinder Test Facilities for Gaseous Cylinders

First of its kind in the country to promote cylinder manufacturers in India by providing technical support, testing & certification, knowledge sharing supporting pure hydrogen fueled vehicles, etc. under Startup, MSMEs scheme and auto PLI scheme for all types of Gaseous



### Helium Leak Testing Equipment

Used in leak testing of components with very low (extremely small) leak rates. It provides better repeatability than other leak detection methods. Applicable for Homologation of CNG/ LNG/ HCNG/ H2 components.



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**ARAI**  
Progress through Research



The Automotive Research Association of India  
(Affiliated to Ministry of Heavy Industries, Govt. of India)

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