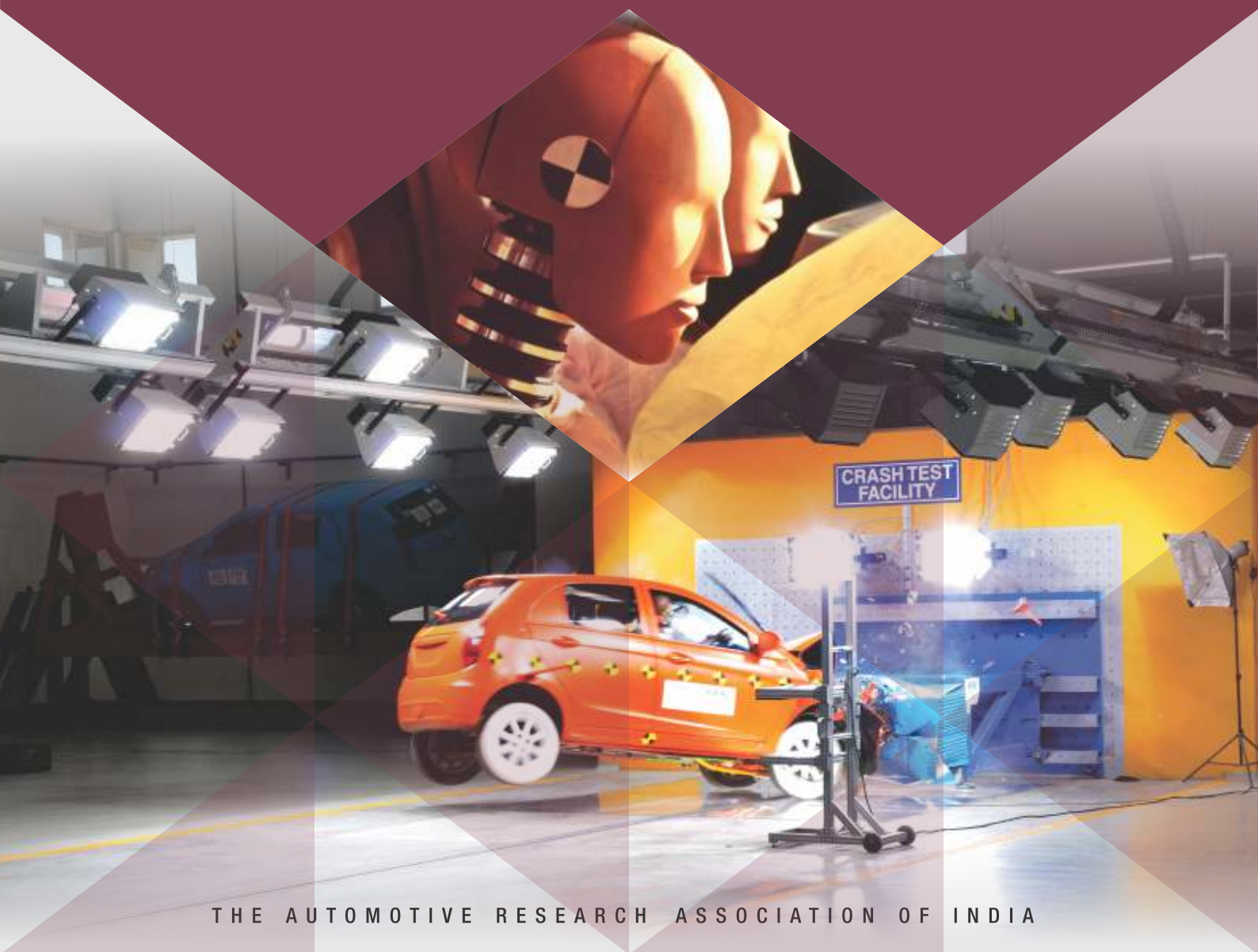


PASSIVE SAFETY LABORATORY

Partner for Safer Mobility



About Us:

India's premier test center for passive safety evaluation with more than 20 years of experience and competency.

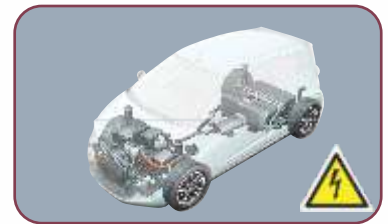
Vision:

To become world leader in providing support for passive safety certification, research and development to automotive industry and sustain the drive towards safer mobility.

Full Vehicle Crash Test Facility



- **India's first public domain crash test facility**
- **Validated and extensively used by all leading OEMs**
- **Full-fledged homologation testing as per Indian & UNECE regulations viz.**
 - Offset Frontal (AIS 098, ECE R94)
 - Side Impact (AIS 099, ECE R95)
 - Frontal Impact for Restraint systems (ECE R137)
 - Steering Intrusion (AIS 096, ECE R12)
 - Rear Impact (AIS 101, ECE R34)
- **Development Testing Facility for**
 - Crash tests as per customer specifications
 - Airbag ECU Calibration for various crash configurations
 - **Various NCAP rating tests alongwith proposed Bharat NCAP**
 - Benchmarking Tests
 - Pole Side Impact
 - Crumple Zone Optimization
 - Post-Crash Fuel Leakage Evaluation
- **Equipped for crash testing and post-crash evaluation of EVs and HEVs**
- **Crash Lab with state of art facilities comprising of**
 - Instrumented crash test dummies and in-house dummy calibration facility: Hybrid III AF5, AM50 and AM95; ES2, ES2-re and SID-IIs; BioRID-II; Q-Series & P-series child dummies
 - Onboard Data Acquisition Systems : 300+ channels
 - Miniature on board / off board high speed cameras: 20+ Cameras
 - Advanced Injury Analysis and Motion Analysis software
 - Various crash sensors and 3D CMM with scanner attachment
 - Dedicated photopits for underbody structural deformation study
 - Dedicated client vehicle preparation rooms



Advance Deceleration Sled Test Facility



- Deceleration sled with bending bar brake system - sled pulses with multiple peaks & tuning with crash pulses
- Maximum trolley payload of 1000 kg, maximum speed of 80km/h and maximum deceleration of 60g.
- Fully equipped to conduct following types of homologation & development tests viz.
 - Seats & restraint system (IS 15546, ECE R17, ECE R80 and AIS 023)
 - Luggage retention tests
 - Interior fitting systems tests (as per IS 15223 Annex.E / ECE R21 Annex. 8)
 - Dynamic testing of CRS (AIS 072 / UN ECE R44)
 - Trolley test method as per AIS 098 Annex 4/ ECE R94 Annex 7
 - Laden tests with instrumented / ballast dummies as per customer specifications
- **Facility validated & accredited by major OEMs and recommended as preferred test center**

Pedestrian Protection & Occupant Protection Test Facility (Universal Impactor Test System) 🏆 📊

- Universal Impactor Test Facility for evaluation of pedestrian protection systems, interior fittings systems and restraint systems
- Pedestrian protection tests with **Flex PLI**, TRL Legform, adult & child headforms (AIS 100, ECE R127, GTR No.9)
- Body block test and Head impact tests with linear and pendulum impactor (AIS 096, IS 15223, ECE R12, ECE R17 and ECE R21)
- Development testing for deployable or active hood systems, knee form impact, FMVSS freemotion headform impact, window glass ejection mitigation & NCAP rating tests etc.
- Facility equipped with dedicated data acquisition systems, high speed cameras & other measurement systems



Safety Belt Test Facility 🏆



- Full-fledged homologation testing of safety belts (IS 15140 and ECE R16)
- Recognized test center for Conformity of Production (CoP) testing for Indian and ECE approval
- All testing facilities for safety belts including static test rigs, six-station retractor durability test rig, climatic chambers, dust chambers and deceleration type bungee sled facility with TNO10 dummies available under one roof
- **Experience of conducting more than 16000 sled tests since inception**

Airbag Deployment Test Facility 🏆



- Test facility for deployment testing of airbag modules as per SAE J1630 and customer specific test standards
- Facility equipped with 1m³ climatic chamber, high speed cameras and measurement systems
- **Proposed Facility upgradation with 8m³ climatic chamber with infra-red heating system for testing of**
 - Full size instrument panels & IP mounted airbags
 - Seat integrated side airbags
 - Curtain airbags
 - Firing tests of airbags on half-cut BIWs
 - Long duration ageing tests of instrument panels with sun load simulation

Child Restraint System Test Facility 🏆 📊



- Child Restraint System (CRS) test facility for type approval of CRS (AIS 072, ECE R44)
- Testing of CRS as per ECE R44.04 for European Homologation
- Universal category CRS Gabarit for installation testing and type approval (AIS 072, ECE R16)
- ISOFIX Child Restraint Fixtures (CRF) for installation tests and homologation (ECE R14, ECE R16)

Side Door Intrusion & Bumper Test Facility 🏆



- Quasi static side door intrusion testing (IS 12009, FMVSS 214)
- Testing of bumpers using moving barrier (IS 15901 and ECE R42) 📊



Facilities accredited for ISO-17025 (Accredited by NABL, India)



Test facilities located at ARAI HTC Chakan

Commercial Vehicle Test Facility



- Facility for testing of cabins of commercial vehicle (AIS 029, ECE R29.02 & R29.03 series)
 - Frontal Impact, A-Pillar Impact and Roof Strength tests
 - Frontal Impact test facility equipped to perform upto 55 kJ impact energy tests
- Tilting platform test facility for
 - Testing of passenger buses for strength of superstructure / rollover testing (AIS 031, ECE R66)
 - Tilt stability testing of buses (AIS 052, ISO 16333)
- Facility for measurement of center of gravity (C.G.) of buses / commercial vehicles
- Facility for testing of underrun protection devices (Front, Rear and Lateral UPDs)
 - Lateral UPDs (IS 14682, ECR R73)
 - Rear UPDs (IS 14812, ECE R58)
 - Front UPDs (AIS 069, ECE R93)
- Component fitment and installation tests (AIS 023, AIS 047, AIS 052, AIS 063)

Anthropometry Database, Digital Benchmarking & Ergonomics Studies



- Advanced 3-D Whole Body Scanner available for anthropometric studies
- SIZE INDIA Database–Anthropometry database of Indian driving population (5000+ volunteers)
- Benchmarking Services for measurement of motor vehicle dimensions viz, Interior dimensions, cargo area measurement and standardization as per SAE J1100
- Facilities for ergonomic evaluation and simulation of vehicles using
 - HPM-I for occupant packaging studies
 - Software packages like CATIA integrated with RAMSIS
 - Full field 3-D scanner for vehicle digitization and digital benchmarking
 - Pressure mats, pedal force and gear shift force sensors

High Speed Photography, Data Acquisition and Onsite DAQ & Testing



- Professional high speed photography and multi-channel data acquisition services for impact testing
- 2-D and 3-D image analysis from high speed photography and data analysis services using advanced software packages
- Onsite data acquisition & high speed photography projects executed for premier R&D organizations

ARAI®
Progress through Research



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

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