



PASSIVE SAFETY LABORATORY

Partner for Safer Mobility



India's first public
domain Crash
Test Facility

ISO 9000, ISO 45000,
ISO 14000 & ISO 27000

20+ Full Vehicle Test
Programs handled
since inception

Design, Simulation
and Crash Test
Benchmarking Services

State of Art Equipment and Facilities 🏆 🏠

Offboard Systems

High speed cameras &
Lighting system



Offboard Systems

Miniature cameras &
Lighting system

Offboard Systems

Electric Vehicle –
Fire Blankets
EV Charging &
Battery discharge
facility Safety Enclosure



Multiple 3D CMM Blue light Scanner
3D Dynamic Photogrammetry

Ruggedized On board Data acquisition Systems

400+ DAQ channels Airbag & PT Timers, Event recorders,
onboard batteries



Tested Vehicle Storage &
inventory management

Separate
8 nos. of fully equipped
preparation workshops

Full range of crash sensors

Structural accelerometers, Strain
gauges, current, voltage sensors,
seat belt & steering column
displacement & load cells, Airbag
and door cavity Pressure and AV
sensors



Moving Barriers



ECE R95 & ECE R135 Crash
Barriers FMVSS-214 – Crab Angle
Barrier FMVSS-301 (Old & New)
Rear Crash barrier AE-MDB crash
barrier, RCAR – Rear Moving
barrier

Anthropometric Testing Devices & Calibration 🏆 🏠

Hybrid III Family
Instrumented & Ballast Dummies
5th%tile, 50th %tile 95%tile

Full Family of P and
Q Series Child Dummies

Side impact Dummies
ES-II, ESII re, SID IIs

World SID
Dummy

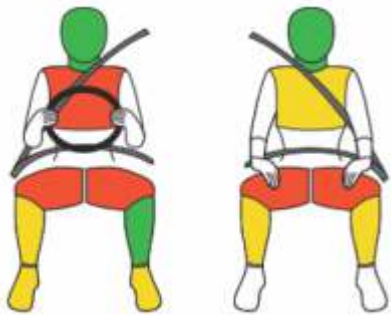
Inhouse ATDs & Sensors Calibration Facility



ATD injury Analysis as per National &
International Protocols

Testing Services 🏆 📊

- Type approval testing as per AIS Standards
- Full Vehicle Crash Safety Developmental testing Supporting different FMVSS and ECE Protocols
- E type approval in association with various European Technical Services.
- Electric Vehicle Crash Safety Evaluation and E – call Simulations
- Testing and star rating evaluation as per various NCAP programs and BHARAT NCAP.



GNCAP Frontal ODB 64kph
Crash: More than 80 tests



GNCAP Side MDB 50kph
Crash: More than 50 tests



GNCAP Side Pole 29kph
Crash: More than 15 tests

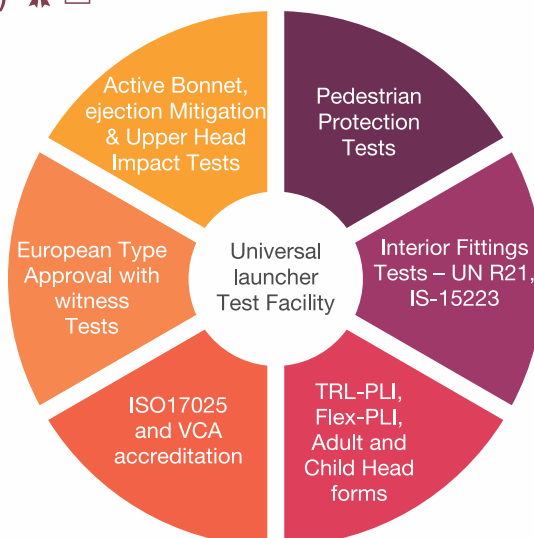
Advance Deceleration Sled Test Facility 🏆 🎯



ADVANCED ACCELERATION SLED



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



Safety Belt Test Facility 🏆



- Full Fledged Facility for:
 - Type approval of Safety Belts as per IS15140 / AIS037
 - Homologation Testing as per ECE R16.
 - Developmental Testing of Safety belts as per Customer Specifications, /IS15140/ECE R16
- Test Facility for Rigid Part Testing, Performance and Durability Testing of Safety belts under one roof. Facilities available are: Safety Belt manufacturers
- Bungee Sled Facility with ECE R16 Manikin, Universal Testing Machine (UTM), Retractor durability, Buckle Durability, Dust Durability, G Lock testing, Retraction force measurement, Abrasion test machine for belt straps, Tilt Lock, Buckle opening force measurement and Belt Adjuster test machine.
- Renowned Test center for Conformity of Production (CoP) of Safety belts as per IS15140 and ECE R16
- Strong Experience of condition of more than 20000 Dynamic Tests of Safety Belts.
- Entire Safety Belt Certification has been accredited to ISO/IEC 17025 requirements.
- Facility is capable to take bulk COP requirements from Indian and International

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

Side Door Intrusion & Bumper Test Facility 🏆



- Quasi static side door intrusion testing (IS 12009, FMVSS 214)
- Testing of bumpers using moving barrier (AIS 006, IS 15901 & UN R42)



**Facilities accredited for ISO/IEC 17025
(Accredited by NABL, India)**



Test facilities located at ARAI HTC Chakan



Test facilities located at ARAI FID Chakan

Child Restraint System Test Facility 🏆 🏠



- Child Restraint System (CRS) test facility for type approval of CRS (AIS 072, UN R129)
- Universal category CRS Gabarit for installation testing & type approval (AIS072, ECE R16)
- ISOFIX Child Restraint Fixtures (CRF) for installation tests & homologation (UN R14, ECE R16)

Commercial Vehicle Test Facility



- Test facility for
 - Frontal impact, roof strength & rear wall strength tests on cabins of Commercial Vehicles as per AIS029 and ECE R29.02
 - High energy Frontal Impact, A-Pillar Impact and Cantrail pre-impact tests for ECE R29.03
- Tilting platform test facility for
 - Rollover testing of fully built passenger buses / sections (AIS031, ECE R66)
 - Tilt stability of buses, trucks and SUVs
 - Measurement of center of gravity (CoG) of buses / commercial vehicles
- Facility for testing of under run protection devices
 - Lateral UPDs (IS 14682, ECR R73)
 - Rear UPDs (IS 14812, ECE R58)
 - Front UPDs (AIS069, ECE R93)
- Component fitment and installation tests (AIS023, AIS047, AIS052, AIS063)

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
 - Pressure mats, pedal force and gear shift force sensors
 - Software packages like CATIA integrated with RAMSIS
 - Full field 3-D scanner for vehicle digitization and digital benchmarking

Dummy Certification & Renting

- Certification of Hybrid-III adult dummies, Eurosid-2, Eurosid-2re, SID-2s dummies, Q-family child dummies, WorldSID 50% tile dummy or simply - Certification of various types of Crash Test Dummies
- Calibration of all the sensors in the crash test dummies like Accelerometers, Load Cells, Potentiometers, IRTACCs
- Renting out of dummies
- Training on dummy certification, assembly / dis-assembly and handling of dummies

Onsite Testing - High Speed photography and Data Acquisition



- Professional high speed photography and multi-channel data acquisition services
- 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



The Automotive Research Association of India

(Affiliated to Ministry of Heavy Industries, Govt. of India)

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