



FOREWORD

I have pleasure in presenting this brochure to you. The automotive sector has always been of paramount importance for the country's growth and ARAI has been playing dynamic role in the progress of Indian automotive sector for over last five decades, working in harmony and confidence with its stakeholders, like Government, Industry and Academia for development of Automotive Industry, by playing multiple roles. Testing and Validation, Certification and Homologation, Design and Development, Standardization & Harmonization, Advisory & Consultancy, Education & Training, Audit & Inspection, R&D, India specific studies & data generation, indigenous & cost effective technology development, etc. are some of the ARAI activities that shaped the automotive excellence, where it is today.

ARAI, in its commitment to develop sustainable mobility solutions is acting as a catalyst in moving towards safer, sustainable and cleaner environment and transportation sector. In today's VUCA World scenario, ARAI is committed to leverage all its resources to protect the interest of its customers, stakeholders, employees and overall operations. Our teams are trained not only for testing and homologation for Indian requirements but are also accredited for export homologation. With right people, technology and tools to fulfil our commitments, ARAI is well equipped to take up future challenges. ARAI also recognizes the need to develop engineers to meet the rising demands of the automotive industry. ARAI Academy continues not only develop the next-gen engineers, but also upskill the working professionals for providing cutting edge solutions.

We, at ARAI, are proud to be an important element of the growth of automotive sector, with our world-class infrastructure and research expertise. It's time for collective, collaborative and cooperative efforts to innovate newer solutions for inclusive development. ARAI - the tried, tested and trusted partner of the industry, with its motto – 'Progress through Research' pledges support to all stakeholders.

Let's drive together to a brighter future.

Dr. Reji Mathai
Director- ARAI



PROFILE

ARAI has been playing crucial roles assuring safe, less polluting and more efficient vehicles. ARAI provides technical expertise in R&D, testing, certification, homologation and framing of vehicular regulations.

ARAI is a co-operative industrial research association of the automotive industry with the Ministry of Heavy Industries, Government of India. It works in harmony and completes confidence with its members, customers and the Government of India to offer the finest services.

ARAI is well-equipped with state-of-the-art infrastructural facilities and highly qualified and trained manpower is its main strength.

Establishment : 1966

Location : Pune, India (160 km from Mumbai)

Manpower : 750+

Accreditation : ISO 9001, ISO 14001, ISO 27001, ISO 45001:2018 and ISO / IEC 17025 (NABL)



ARAI, Kothrud

Automotive Electronics, Calibration, Engineering Design and Simulation, Emission Certification, Environmental Research, Homologation Management & Regulation, Knowledge Centre, Noise Vibration & Harshness, Passive Safety, Powertrain Engineering, Safety and Homologation, Structural Dynamics, Vehicle Evaluation

ARAI - HTC, Chakan

Centre of Excellence Green Mobility, Fatigue & Materials Centre of Excellence, Centre of Excellence Power train, Passive Safety, Drive train Development center

ARAI - FID, Chakan

Learning Centre, Training Centre, Knowledge Centre, Forging and Heat Treatment Research, Simulation Lab, Digital Twin lab

International representation in China & South Korea

Regional Offices in Chennai, Bangalore & Hyderabad





Recent Recognitions and Awards

2023 IESA Industry Excellence Award on Battery Safety

MCCIA Dr. R J Rathi Annual Award for Green Initiatives, Year 2022

Winner of Global Sustainability Award 2019 in Gold Category

Golden Peacock Environment Management Award 2016

'Best Corporate Award' by SAEINDIA Foundation

Recognized as Scientific & Industrial Research Organization (SIRO)

'Recognized Overseas Test Lab' by Land Transport Authority (LTA) and National Environmental Agency (NEA), Singapore

Appointed as 'Technical Service Provider' by RDW, Netherlands for CoP verification audits

Recognition by Department of Infrastructure, Australia to provide Test Reports in compliance to ADRs (Australian Design Rules)

BIS Recognition for Automotive Safety Components

National Agency of Automobile & Land Transport Technology, Japan has designated ARAI for Emission Testing



**GLOBAL SUSTAINABILITY
AWARD 2019**



ENGINEERING SERVICES

Testing and Validation

Service Data Acquisition

Failure Analysis

Benchmarking

Development Validation Plan

Metrology

Equipment Calibration

Technology Transfer

Process Simulation

Forging Process Design / optimisation

Plastic Moulding Process Design / Optimisation

Design and Development

3D scanning & CAD Data Generation

Computer Aided Engineering

Virtual Engineering and Simulation

Onsite / Offshore Development Centre (ODC)

Optimisation

Calibration

New Product Development (NPD)

Advisory and Consulting

Inspection and Audit

Project Management

AUTOMOTIVE ENGINEERING AREAS

Active Safety

Alternate Fuel Technology

Automotive Electronics

Electric/ Hybrid Vehicles

Engineering Design & Simulation

Emission

Environmental Research

Equipment Calibration

Forging Technology

Materials

Noise & Vibration

Powertrain Design

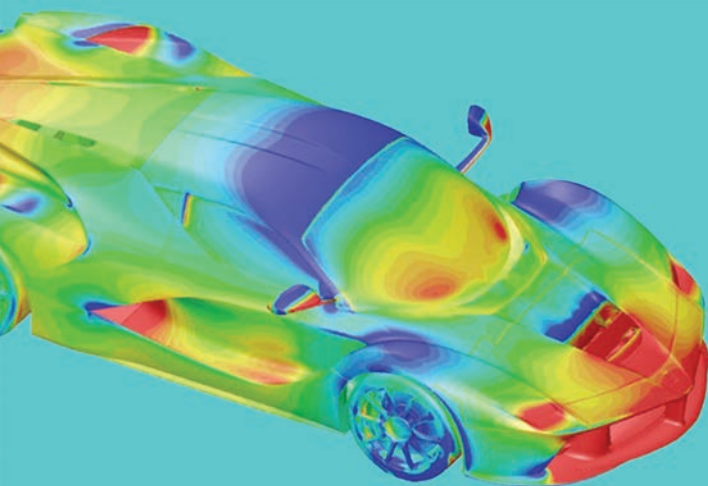
Powertrain Engineering

Passive Safety

Structural Dynamics

Technology Development

Vehicle Evaluation





CERTIFICATION & STANDARDISATION

Certification

Comprehensive Certification and Homologation Services under one roof covering wide range of National and International standards

CMVR Type Approval of vehicles, sub-assemblies and components

Conformation of Production (COP)

Accreditations

Export Homologation

Web based e-services for Homologation and Regulation

Regulatory Areas

Environment - Noise, Exhaust Emission, EMI / EMC

Alternate Fuel

Hybrid / Electric Vehicles

Passive Safety

Active Safety

Light / Light Signaling devices

Standardization

Assistance to Government for formulation of country's automotive standards and harmonization of regulations at international forum.

Certification as per

CMVR	ECE
AIS	ADR
IS	SANS
ISO	SASO
FMVSS	GSO
JASO	JIS



RESEARCH & DEVELOPMENT

RECENT TECHNOLOGY PROJECTS

Powertrain and Transmission

HCCI, Dual Fuel, HCNG, DI - CNG, Advanced low temperature diesel combustion, low temperature diesel combustion, super charging of small engines, GDIEMS

EV- HEV

EV Simulator, System Engineering

Prototype EV / SCV Control & Transmission, Battery & Hybrid Vehicles

Vehicle System

Integrated safety system, semi active air suspension, Electronic Power Assist System (EPAS), Adaptive Front Lighting System (AFS)

Autonomous Vehicle Program

PROJECT OF NATIONAL IMPORTANCE

- Life Cycle Analysis for battery recycling process
- Source Apportionment studies
- Emission Inventory development
- Emissions Outlook and Air Quality Modelling projects
- Genset Retrofit for emission control certification
- Nodal agency to assess impact of E20 fuel in older vehicles
- Performance Evaluation of M15 Fuel on Gasoline 2 and 4 Wheelers (Vehicle and Engine)
- Assessment of E20 fuel on BS-IV & VI compliant 3W & 4W Vehicles
- Inspection & Certification Centres across India under MoRTH and State Govt.

UPCOMING FACILITIES

MRC- TAKWE

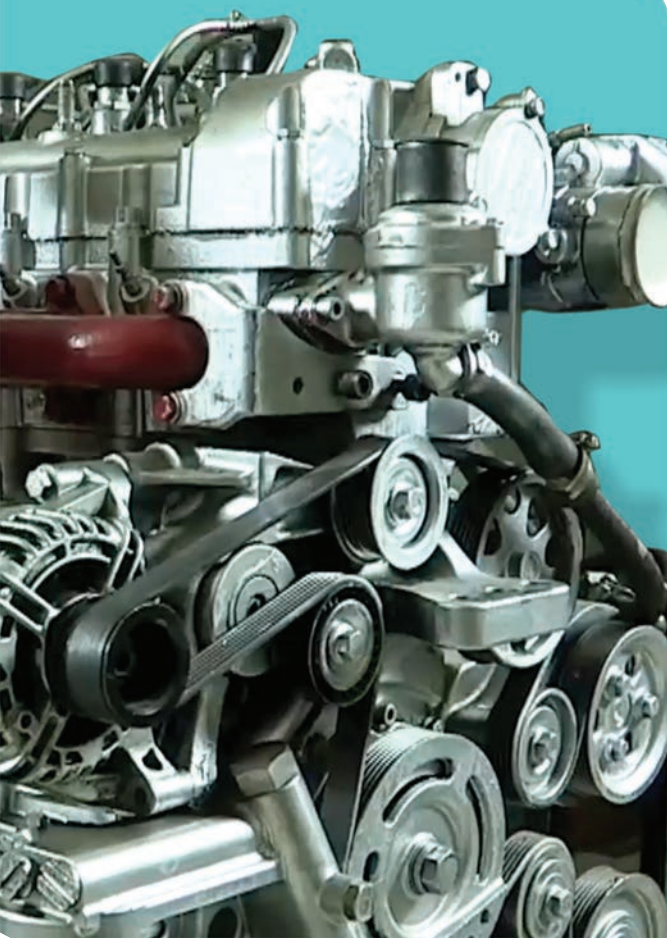
- High energy Impact Test Facility (HEIT)
- Cylinder test Lab
- ADAS Smart City Zone

FID- CHAKAN

- Advanced NVH development centre
- Advanced Acceleration Sled facility

HTC- CHAKAN

- Advance Battery Safety Lab
- Photometry Lab





TECHNOLOGY & PRODUCTS

- 100 kW Fast Charger Technology
- Battery Management System (BMS) technology
- Technology Know-how of AC Charger
- Light Electric Vehicles (LEV) AC Charge Point technology
- Vehicle Control System
- GISSMO Material Model Card
- Acoustic Vehicle Alerting System (AVAS)
- E-axle Powertrain Kit for 3-Wheeler application
- Packaging material solution for Battery Thermal Management System
- Drive-by-Wire Platform
- Mobile Energy Storage Device for 2 & 3 Wheeler EVs
- EV & EVSE Simulator
- E-Lite – Electric Bus Development: A Conventional Bus with
- Aluminium Superstructure for city application
- HIL Validation of EV Controllers
- Dual Fuel (Diesel + CNG) Engine for off-road applications
- Simulation based certification of seat anchorage strength
- Air Bag simulation



KNOWLEDGE INITIATIVES

Learning Centre

Graduate, Post Graduate and Doctoral Program in Automotive Engineering
in collaborations with Indian and Overseas Universities

Training Centre

Proficiency Improvement Programs (PIP)
Domain Training Programs (DTP) at customer location

Knowledge Centre

Journals, Books and Digital Library
Publishing of Automotive Abstracts and Literature search service

Conferences and Seminars

Symposium on International Automotive Technology (SIAT), International Conference
on Automotive Materials & Manufacturing (AM&M) and many more

Support to knowledge Societies

Supporting Lectures / Workshops, Seminars, Conferences, Student Events by SAE, ASM, CII and many more

Technology Theaters & Technology Days

Facilitation to showcase contemporary Technologies to Automotive Fraternity
Technology Awareness Program at Organizations

COLLABORATIVE PLATFORM



- TechNovuus, a web based digital platform is a Collaborative Ecosystem launched by ARAI under the aegis of Department of Heavy Industries.
- TechNovuus enables Indigenization, Innovation and Technology Development in collaborative manner giving impetus to Make in India and Atmanirbhar Bharat
- TechNovuus brings together all the stakeholders like Government, Industry, Research Institute, Academia, Knowledge Societies, Individual Experts and Students
- TechNovuus has modules for Collaborative Technology Solutions (CTS), Technology Transfer, Resource Sharing, Technology Discussion Forum, Technology Consortium, Expert Connect.

Come be a part of TechNovuus to shape future of
Mobility in India

Visit : www.technovuus.araiindia.com





ARAI MEMBERS





The Automotive Research Association of India

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