



COMPONENT TEST LAB (CTL)

With continuous expansion in Automotive Sector, there is a massive increase in development of variety of safety critical components. These components are evaluated as per the existing and upcoming national and international regulations/standards viz. IS, AIS, ECE, JIS, SAE etc.

CTL is committed to carry out the entire mandate testing on these components and do Research & Development internally to make our facilities suitable to fulfill the requirement of our customers. Following are the major thrust areas where we can work with the automotive industry in developing cutting edge technologies to compete globally.

MAIN EQUIPMENTS & FACILITIES

- ✦ Combined Vibration & Environmental Test System [Shaker Capacity 1000 kgf & Temp. Range - 60°C to 200°C]
- ✦ Cyclic Temperature & Humidity chamber [Range : -40°C to 180°C]
- ✦ Weather-O-Meter (M/s. Atlas, USA. Model: Ci4000, Lamp: Xenon Arc)
- ✦ Bumper Impact Test Facility for M1 Category Vehicles
- ✦ Wheel Rim Test Facilities
- ✦ Seats Test Facilities
- ✦ Safety Belts Test Facility
- ✦ Servo hydraulic Test Facilities for Mechanical Couplings as per AIS:091 (P1 & P2)
- ✦ Thermal Cycle Chambers (04 Nos.)
- ✦ Walk-In Chamber (Size: 6m x 5m x 3.8 m)
- ✦ Steering lock test rig (Anti-Theft Device) for Passenger car as per AIS:075
- ✦ Demisting & Defrosting Test Facility
- ✦ Thermal Cycle & High Temp. Cycle Test Rigs for Oil Coolers, CAC & Radiators
- ✦ Fire Resistance Test Facility for Plastic Fuel Tanks
- ✦ Seat Belt Anchorage Test Rig
- ✦ Survival Space Pendulum as per AIS:029
- ✦ Tilt Test Platform as per AIS:031
- ✦ Fire Detection & Spray Suppression (FDSS) Test Facility as per AIS:135
- ✦ Impact Test Rig for Alloy Wheel Rims as per SAE
- ✦ Material Level DVP Test Rigs for Plastic & Rubber Parts
- ✦ Hot Impulse Test Rig for Power Steering hoses and brake hoses



DETAILS OF SOME THE SAFETY COMPONENTS TOGETHER WITH THE AIS/ECE REGULATIONS THOSE CAN BE CERTIFIED/ TESTED ARE AS FOLLOWS:

S.No.	SAFETY COMPONENT	IS / AIS	ECE
1	Brake Hoses	IS: 7079 - 2008 with its Amendment No 1, Sept.:2011	-
2	Metallic & Plastic Fuel Tank	IS:14681 and IS:15547	ECE R34
3	Safety Glasses	IS:2553 Part 1 & 2	ECE R43
4	Door Locks & Hinges	IS : 14225 - 1995	ECE R11
5	Rear View Mirror	AIS: 001 Rev. 01/2011	ECE R46-
6	Wheel Rims	IS:9436-1980, IS:9438-1980, AIS:073 (P1, P2 &P3)	-
7	Brake Fluid	IS: 8654 - 2001	-
8	Safety Belts	IS 15140 - 2003	ECE R16
9	Automotive Seats	IS:15546-2005 & AIS:023-2005	ECE R17 & ECE R86
10	Windscreen Washer Tanks & Wiper Blades	IS:15802 & IS:15804-2008	-

BRIEF TECHNICAL SPECIFICATION OF THE EQUIPMENTS FOR DEVELOPMENT TESTS:-

S.No.	Test Equipment	Brief Technical Specification
1	Combined Vibration & Environmental test system	Electrodynamic Vibration Shaker: Force Rating : 1000 kgf Environmental Chambers: Size : 1m x 1m x 1m (Temp.: -60 C to +200 C)
2	Expansion & Burst test rigs for Hydraulic Brake Hoses, CNG & Wire Braided Hoses	Standards :IS : 7079 - 2008, SAE J 1401,FMVSS 104 Length of hose : upto 1000 mm, Max. Burst Pressure : upto 2000 bar
3	Whip Test rig for Hydraulic Brake Hoses	Standards : IS - 7079, SAE J 1401, FMVSS 104, Range of Hose Length : 200 to 600 mm, Max. 04 hoses can be tested at a time.
4	Ozone Chamber	Standards : IS : 7079 -2008, SAE J 1401, FMVSS 104 Ozone concentration Range : 0 to 500 ppm, Temp. Range : Ambient to 70°C Flexing of hoses can be done inside the chamber.
5	Dust Chamber	Standards : IS : 1884 - 1993, SS : 15.1, IS : 8339 - 1993, IP : 55,65 etc Temp. Range : Ambient to 60°C
6	Water Spray Chamber	Standards : IS : 1884 - 1993, SS : 15.1, Temp. Range : Ambient to 60°C No. of Showers : 08 @45°, Speed of Table : 2 to 12 rpm
7	Cyclic Temperature & Humidity Chamber	Temp. Range : -40°C to 180°C Humidity Range : 20% to 98%
8	Salt Spray Chamber	Standards : ASTM 117, G85A5, D1735, SAE J 2334, CCT - I,IV, MCT - 2M, Custom Program : upto 11, Temp. Range : upto 45°C, Make : MTS, USA
9	Test Rigs for Oil Coolers & Charge Air Coolers (CAC)	Thermal Cycle Test: ^ Hot Air Temp. : Ambient to 250°C ^ Cold Air Temp. : Ambient to 200°C ^ Inlet Pressure : Upto 2.5 bar High Temp. Cycle Test of 'CAC': ^ Air Inlet Temp. : Ambient to 200°C ^ Inlet Pressure : Programmable Pmin. to Pmax. in stages (05 kPa to 250 kPa) ^ Inlet Pressure : Upto 2.5 bar Coolant Internal Corrosion Test: ^ Test Medium. : Coolant (OEM specified) ^ Inlet Flow : Upto 110 LPM ^ Inlet Temp. : Upto 150°C bar Test Specification of Pressure Drop Test: ^ Test Medium : Fluid (OEM Specified) ^ Inlet Flow : Upto 110 LPM ^ Inlet Temp. : Upto 150°C
10	Hot Air Oven	Temp. Range : Ambient to 200°C Dimension : 1m X 1m X 1 m
11	Deep Freezer	Temp. Range : -35°C to -70°C
12	Hot Impulse Test Rig for hoses	Temperature Range : 0 -200°C Pressure Range: 0 -200 Bar (0 -2900 psi) Maximum Hold Time : 60 Seconds Pressure Medium : oil

SPECIFIC CAPABILITIES

CTL is supporting OEMs & components manufacturers by executing /performing different kinds of DV/PV testing as per various international and OEM standards. The lab has successfully executed various DV/PV Projects of OEMs for different components. Some of them are:

- ⬆ DVP Testing of Floor Console assembly & Instrument Panels (IPs)
- ⬆ Material Level DV/PV Testing of Plastic Interior Components
- ⬆ Complete DVP Validation including Testing like Tensile Test, Bending Test etc., of Roofliner Material intended for Side Curtain Airbags (SCABs)
- ⬆ Thermal and High Temperature Cycle Test of Charge Air Cooler (CAC)
- ⬆ DV/PV Testing of Weather strips/rubber parts
- ⬆ DV/PV Testing of Airbag Modules & Steering Wheels. Coolant Internal Corrosion Testing of Oil Coolers
- ⬆ Tensile Testing under controlled temp. conditions [-40C to +180C]
- ⬆ Testing of Grill garnish Assembly with bumper as per OEM Standard
- ⬆ DV/PV Testing of Radiators
- ⬆ Durability Testing of Child Lock
- ⬆ DVP Testing of Roof Rails as per OEMs Standards
- ⬆ Testing of Anti-Freeze Coolants as per JIS & Indian Standard
- ⬆ Fire Resistance Test of Plastic Fuel Tanks as per IS: 15547, ECE R34 and OEM Standard

MAJOR KEY PROJECTS AND CAPABILITIES

- ⬆ Thermal and Pressure Cycle Test of Auxiliary Tanks
- ⬆ Pressure , Vibration & Temperature (PVT) test of Hoses for coolant
- ⬆ Cushion Durability Test of RR Seat (Passenger car)
- ⬆ DVP Testing of Brake Pedals & Clutch Pedals/Pedal Box as per OEM Standard
- ⬆ DVP Testing of Floor Console assembly & Instrument Panels (IPs)
- ⬆ Material Level DV/PV Testing of Plastic Interior Components
- ⬆ Complete DVP Validation including Testing like Tensile Test, Bending Test etc., of Roofliner Material intended for Side Curtain Airbags (SCABs)
- ⬆ High Speed Rotation Test of Wheel Rim
- ⬆ Endurance Test of Arm Rest
- ⬆ Durability Test of Handle out Door Assy
- ⬆ Bending Test (3 Points, Flexural) of Roofliner intended for SCABs
- ⬆ DVP Testing of Radiators intended for Railways
- ⬆ Vibration & Shock Testing of HVAC intended for Railways
- ⬆ Testing of Seats intended for Metro Rails
- ⬆ DVP Testing of Weather Strips/rubber parts as per OEM Standard.
- ⬆ DVP Testing of Rear View Mirrors as per OEM standard
- ⬆ Tensile, Bending & Impact Test at +85°C, +100°C, -5°C, -40°C

LAB ACCREDITATION

This Laboratory has accreditation e.g. IMS, ISO 17025/NABL for components like Rear View Mirror, Safety Glass, Wheel Rim, etc., and BIS for Safety Glass. Also the test facilities for RVMs, Door Hinges & Latches have been accredited by VCA, UK for export homologation.

BENCHMARKING CORRELATION INFORMATION

In order to enhance confidence about the reliability of test results/test facilities, the laboratory participates in Correlation & Benchmarking activities with other renowned labs on quarterly basis and every year.



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