

MECHANICAL ENGINEERING

HCL ENGINEERING AND R&D SERVICES

Designs that Matter

With rising costs and margin pressure across industries – manufacturing companies look beyond their shores to optimize their Product Engineering and R&D services to shorten their product development time and get an early edge in the competitive business ecosystem. At HCL, we understand the importance of innovating and customizing the existing products of our customers in the minimum possible time-frame. HCL offers advanced Mechanical Engineering services to customers that help them in developing complex mechanical designs and products, significantly reduce their time-to-market and help them penetrate early and deep into the existing and emerging markets.

HCL's capabilities in providing solutions throughout the product development life cycle from conceptual design, industrial and mechanical engineering design, CAD modeling and detailing, to simulation, analysis and prototyping, product testing and low volume manufacturing makes HCL a unique one-stop solutions provider for Engineering Services. HCL also has expertise in implementation, maintenance and customization of PDM and PLM tools.

Mechanical Engineering Practice Snapshot



Process



Tools



Infrastructure

- ISO 9001
- Processes compliant to SEI CMMI v 1.2
- ISO 13485 : 2003 certification for medical devices
- BS 7799, ISO 27001, ISO-14971 certified

- CAD: Unigraphics, Pro/E, CATIA, AutoCAD, Ideas, Solid Works, CCDraft, CADD5, - Solidedge , Solid designer
- CAE: Ansys, Nastran, Abaqus, LS Dyna, Ideas, Fluent, Icepak, Hypermesh, Moldflow,- Pro-Mechanica, Adams
- PDM/PLM: Metaphase , Windchill , eMatrix , ENOVIA/Smart team, IMAN, - Team center, Intralink
- Ind Design: Adobe Photoshop, Adobe Illustrator, Corel Draw, Rhinoceros, Alias
- TechPub: EpicEditor, IsoDraw CADProcess, Interleaf , Frame maker, Micrografx
- Reliability: Relex, ReliaSoft, CAFTA, Weibull

- State of the art delivery centers (Bangalore and Chennai)
- Testing Labs and Mfg capabilities

Concept to Manufacturing

Analysis

CAE Structural &
Thermal Analysis and
Reliability Prediction

Modeling & Detailing

CAD Modeling &
Detailed Design, Manufacturing
Drawings & BoM,
GD&T, Stack-up Analysis
and ANSI standard

Reliability

Reliability Planning, FMEA &
DFMEA, Warranty analysis,
Reliability test plan



ECO

Configuration
Control & Change mgmt

Testing

Shock, Vibration, Environmental
Testing, Certifications, Test Fixture
Design, Functional &
Performance Testing,
Component/ Material
Qualification, EMI & EMC Testing,
Compliance Testing &
Certification

Design

Component Design
DFx

Concept to
Manufacturing

Product
Maintenance

Concept

Industrial Design Styling &
Ergonomics, Voice of Customer,
Competitor Analysis, Usability
Studies

Design
Maintenance

Manufacturing support

Tooling & Fixtures Design,
Service manual & User
manual Design, Training
Guide & Animation

Obsolescence Mgmt

Engineering Change
management, RoHS
services, Legacy Drawing
conversion, Value
Engineering

Mechanical Industry Spread



Aerospace

- Structures
- Engines
- Cabin Systems
- Interiors
- IFE
- Systems
- Avionics



Hi-Tech

- Equipment design,
- Structural Engineering
- Piping design
- CAD services
- Process Flow Diagrams (PFD), P&IDs
- Equipment layouts



Energy & Utilities

- Oil and Gas
- Transmission and Distribution
 - Motors
 - Generators
 - Transformers
 - Inverters
- Renewable Energy



Automotive

- Interiors
- Safety systems
- Powertrain
- HVAC
- Electric Vehicles
- Recreational Vehicle



Medical devices

- Cardiovascular
- Infusion Systems
- Disposables
- Orthopedic
- Diabetes Management
- Diagnostic Imaging
- General Surgery
- Urology



Consumer Electronics

- Home Appliances
 - Vacuum Cleaners
 - Refrigerators
 - Fabric Care
 - Cooking appliance
- Entertainment
 - Gaming
 - Cameras
 - Television
- Mobile Phones and Laptops



Industrial

- Heavy equipment
- HVAC and Climate Control
- Automation
- Fire & Safety
- Oil & Gas



Mechanical Engineering at HCL



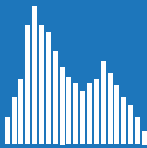
*15+ years
of powerful
legacy*



*Simulation
Based
Engineering*

*HCL ERS has
proven
domain
expertise and
focus in*

*Value
Engineering*



Reliability



*3mn+
investment in the
ecosystem - lab
infrastructure,
SME & industry
consultants*

*%
PROFIT*

*20mn+ value
creation for
customers in
the last 3 years*

Experiences Engineered for our customers (Case Studies)

1 Verify structural integrity of Assembly Fixture and provide design solution which passes the acceptable static & fatigue design criteria according to ASME-BTH-1-2005

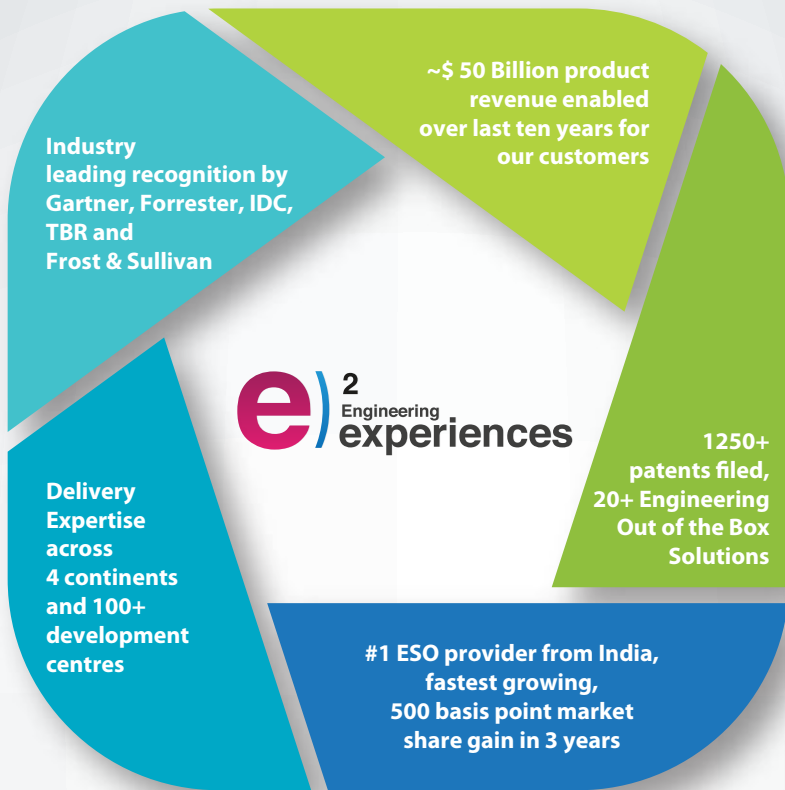
2 Complete Product Development of Local Display for a range of Toxic Gas, Combustible Gas and Flame sensors - Firmware development on the Transmitter board for better detection of faults, alarms and events

3 For a medical device major, HCL did complex design and development on a cutting edge product - a drug delivery system for Class III medical devices. A time to market reduction of 30% was achieved by adopting ISO13485 compliant development activities including regulatory support.



Look here





Hello, I'm from HCL's Engineering and R&D Services. We enable technology led organizations to go to market with innovative products and solutions. We partner with our customers in building world class products and creating associated solution delivery ecosystems to help bring market leadership. We develop engineering products, solutions and platforms across Aerospace and Defense, Automotive, Consumer Electronics, Software, Online, Industrial Manufacturing, Medical Devices, Networking and Telecom, Office Automation, Semiconductor and Servers & Storage for our customers.

For more details contact: ers.info@hcl.com
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