

# PRODUCT ANALYSIS SERVICES

Efficient | Optimized | Agile

## Trending

A recent trend report by Wakefield Research, as the global demand for more sustainably designed and energy-efficient buildings rises, energy costs and government regulations on energy consumption experienced a correlating increase.

Consumers also seek a significant potential to save energy which means energy labels are an important factor in the decision making process for purchase of refrigerators or washing machines.

Performance is another rising consumer trend when it comes to technical goods. Consumers are also looking rich and convenient experiences, i.e. high capacity fridges helping to stock more food and hence, fewer shopping trips.

## Opportunities

### Constraints in emerging markets

Companies are constantly in a competitive need to align product cost for the emerging markets while ensuring benchmarked product quality and performance.

### Identification of usage gaps

Customization of a product according to the needs of different markets or market segments is a challenge. It is important to identify and implement the correct set of features considering the consumer behavior and needs.

### Risks associated with new technology integration

Companies aiming to improve product functionalities with new technology integration must weigh in potential risks and impact on the intended use of the device.



### Consumer benefits

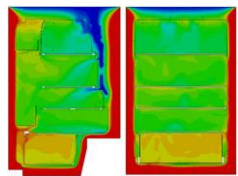
- Energy efficient appliances leads to lower cost of ownership to the consumers
- Higher performance and quieter operations

# SERVICE OVERVIEW

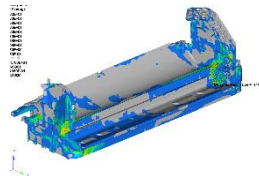
Strength & Stiffness	Durability	NVH	CFD
<ul style="list-style-type: none"> <li>Torsion &amp; bending</li> <li>Static stiffness and strength analysis.</li> <li>Pretension, shrink fit analysis</li> <li>Contact and material non-linear analysis.</li> </ul>	<ul style="list-style-type: none"> <li>Parent metal and weld fatigue analysis</li> <li>Thermo-mechanical fatigue</li> <li>Vibration fatigue</li> </ul>	<ul style="list-style-type: none"> <li>Modal analysis</li> <li>Frequency response</li> <li>Point and transfer mobility</li> <li>Structure-borne noise</li> <li>Random vibration analysis.</li> </ul>	<ul style="list-style-type: none"> <li>Prediction of Air flow and temperature distribution</li> <li>Heat infiltration Thermal analysis for given environment</li> <li>Support Design Optimization</li> </ul>

CAE Platforms
<p><b>Pre-processing</b> Hypermesh, ANSA, NX</p>
<p><b>Analysis Tools</b> Nastran Abaqus LS-Dyna Matlab Fluent Ansys SC-Flow solver</p>
<p><b>Hardware</b> High-end work stations with multiple cores</p>

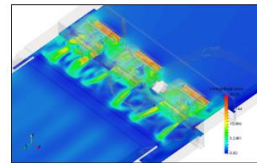
## Products experience



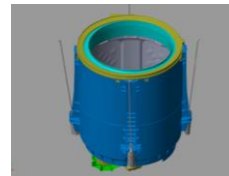
Refrigerators



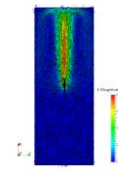
Air conditioners



Air ducts



Top load washing machine



PCB

## Offerings



Energy savings solutions



Value engineering



Model-Based-Design approach for quick solutions

## Sample cases

- CFD Analysis of Top and Bottom Freezer refrigerator models
- Vibration reduction of Top Load Washing Machine using MBD-MILS