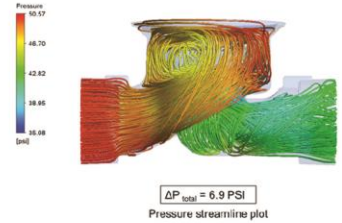


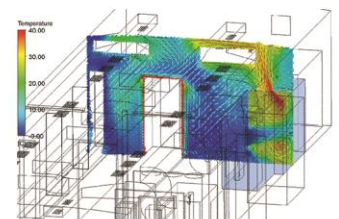
Computational Fluid Dynamics (CFD)

APA's Engineering domain primarily offers consultancy services with specialization in advanced Computational Fluid Dynamics (CFD). Our collaborative consulting business model delivers the CFD simulation services for clients to create robust designs faster and more reliably without distractions to their current development process.



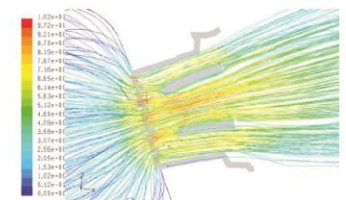
Computational Fluid Dynamics - Consultancy

- ✓ Pre-processor: CFX, ANSA, ICEM CFD, TGrid
- ✓ Solvers: Fluent, CFX, AcuSolve
- ✓ Post-processor: CFX Post, CFD Post



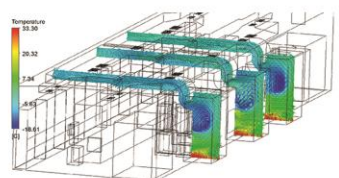
APA helps you better understand

- ✓ Pressure, Velocity and Temperature contours.
- ✓ The new design flow by providing comparative study with the baseline flow pattern and parameters.
- ✓ Flow conditions from transient to steady state, Aerodynamics study, Passenger comforts in cabin and HVAC.
- ✓ Wind effects on structures, Flow parameter changes in the fluid line. Buoyancy or Sloshing effect on fluid tanks.
- ✓ Flow problem diagnostics, Condenser heat transfer, Turbulence studies.



Capabilities - Computational Fluid Dynamics (CFD)

- Steady state and transient state flow modelling.
- Heat transfer on diverse flows.
- Fluid structure interaction.
- Temperature pattern for reactive fluids.
- Natural / Forced convection.



For FEA 



Finite Element Analysis (FEA)

APA helps you retrieve the valuable Stress, Strain, Deformation, Natural frequencies about the system structural components and assemblies, which cannot be obtained using traditional analysis methods. The many benefits of choosing APA for FEA consultancy in design process are listed below

Finite Element Analysis - Consultancy

APA uses leading software packages for finite element analysis

Pre-processor: HyperMesh, ANSA, Altair SimLab

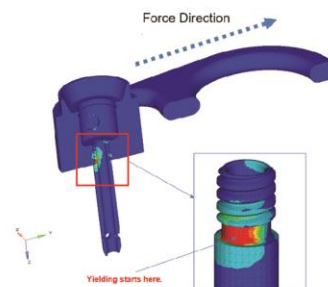
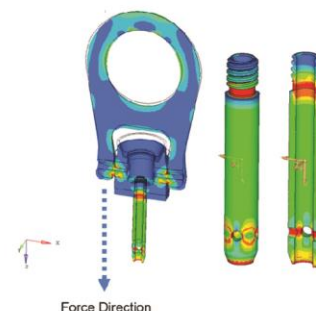
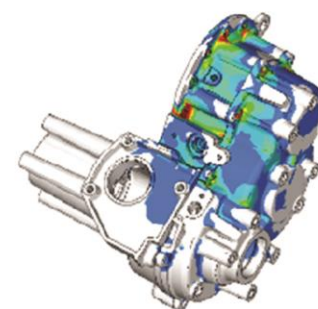
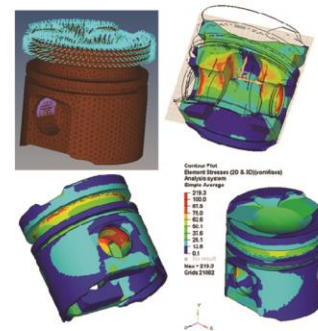
- ✓ Solvers: Nastran, Abaqus, Ansys, Optistruct, LS-Dyna.
- ✓ Post-processor: HyperView, ABAQUS/Viewer.

APA helps you better understand

- ✓ The point of yield, when the plastic or permanent deformation occurs for the given boundary conditions of the load.
- ✓ If the component resonates or vibrates uncontrollably under modal frequencies.
- ✓ If reduction or optimizing material volume is preferred over using less expensive material.

Capabilities - Finite Element Analysis (FEA)

- ➡ Static - Stationary Load Problem
- ➡ Stress and strain, Contact, Nonlinear materials, Large deflections
- ➡ Vibration - Oscillating Load Problem
- ➡ Modal, Harmonic, Shock and vibration, Random, Transient
- ➡ Thermal - Heat Transfer Problem
- ➡ Static, Transient
- ➡ Safety - Occupant and Passenger Safety
- ➡ Frontal Crash, Side Crash, Rear Impact, Head Impact.



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