



www.consciousconsulting.ind.in

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We are the Team of Design and Engineering professionals rendering Drafting and Engineering services to the Chemicals, Pharmaceuticals, Oil and Gas, Petrochemicals, Waste water Treatment and Food Processing Industries.

Strength and Capabilities

Component	Codes/Standards	Engineering Tool	Design Tool
Vessel and Heat Exchanger	ASME & EN13445	Compress, PVElite, FE Pipe, ANSYS	CADWorx and AutoCAD
Tank	API650, API620	Inhouse Spreadsheet	
Stack	ASME STS-1, IS:6533, EURO codes, BS, CICIND	MecaStack, STAAD.Pro, ANSYS	
Piping Layout Engineering & Flexibility Analysis	ASME & EN codes including FRP piping	CAESAR	
Skid, Platforms & Spreader Beam	ASME STS-1, EURO codes, BS, IS	STAAD.PRO, Limcon, RAM	
Ducting and its supports	Standard practice	CAESAR, STAAD.Pro	

We Deliver following without Compromising Quality and with Competitive cost :

A) Engineering Services:

1) Vessel and Heat Exchanger:

- Pressure Vessel and Heat Exchanger calculations using PVElite, Codecalc, Compress, NozzlePro, ANSYS and in-house developed Calculation Sheet
- Rectangular vessel calculations
- Local stress calculation per WRC bulletin 537, 107&297
- Shipping and Lifting Calculations
- Calculation for Vessel Internals
- Platform structure design & platform clip design
- Tank Design as per API 650, API 620 and Silo Design
- Air Cooler Design as per API 661
- Thermal and Hydraulic design for heat exchanger using HTRI

2) Piping :

- Piping Stress Analysis for piping related to Steam service, Oil & Gas, Petrochemical, Chemical Plant as per ASME B31.3 and ASME B31.1 using CAESAR tool
- Stress analysis of underground piping
- Modelling of piping using softwares like CADWorx
- Piping material specification
- Isogen with BOM, spool drawing preparation
- The piping stress analysis and detailing includes Equipment modeling, nozzle check, stress analysis, pipe support location, clash check, isometric.

3) Structure & Stack:

- Skid structural layout engineering and calculations
- Steel tower/ Derrick structure & connection design calcs
- Stack calculations
- Piperack structural calculations
- Spreader beam and shipping frame calculations

4) Finite Element Analysis :

- FEA as per ASME Sec. VIII. Div. 2 / API 579 – ASME FFS1
- Type of Analysis includes : Thermal – steady state & transient, Structural – steady state & transient, Linear Elastic, Nonlinear – Plastic, Coupled analysis, Fatigue, Creep
- The FEA includes Nozzle analysis, entire equipment analysis, hotbox analysis, lifting analysis, fatigue analysis, creep analysis etc.
- FEA for the abnormalities as vessel damage / denting and corresponding repair work, Vessel ovality, skirt offsets due to ovality, baffle analysis to predict the failure of baffle etc.
- Thermal + Mechanical analysis of Heat exchanger
- FEA for expansion bellow
- Analysis of any miscellaneous component
- Validation of third party, third software

B) 3D Modelling and Drafting Services:

1) Vessel and Heat Exchanger:

- General Arrangement and Detail Fabrication drawings
- Shipping/Transportation drawings
- Erection drawings

2) Piping :

- Modelling of piping using softwares like CADWorx
- Piping material specification
- Isogen with BOM, spool drawing preparation
- The piping stress analysis and detailing includes Equipment modeling, nozzle check, stress analysis, pipe support location, clash check, isometric.

3) Structure:

- General Arrangement and Detail Fabrication drawings
- Connection detailing

Layout engineering and weight during pre-order stage

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Thank you!