LATTICEPT
TRANSFORMING. INDUSTRY.

# Transforming Industry: Pressure Vessel and Finite Element Analysis.

Pressure Vessel Analysis

Choose LATTICEPT for your Pressure Vessel Analysis needs and ensure your operations meet the highest safety and performance standards. We specialize in ASME Section VIII, Division 1 and Division 2 and API-579/ASME FFS-1: Fitness for Service Codes. Our expert team offers a wide range of services to meet your needs.
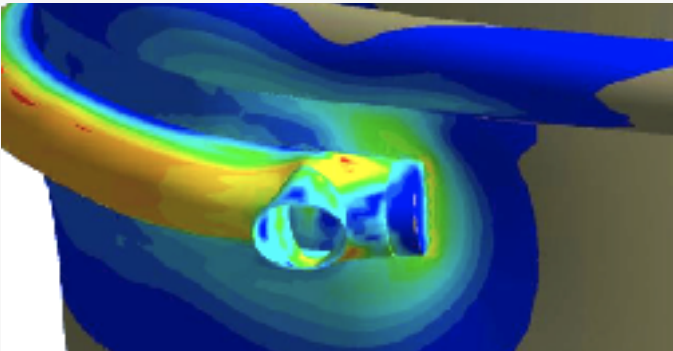
NOZZLE LOADS: Detailed evaluations to understand and mitigate stresses within pressure vessel nozzles.

FATIGUE ANALYSIS: Assessment of long-term durability from cyclic loading per Division 2, Part 5.

FRACTURE MECHANICS: Assessment of existing cracks, flaws and damage in pressure vessels per API-579.

THERMAL STRESS ANALYSIS: Examination of local temperature-induced stresses to prevent thermal fatigue and failure.

INTERNATIONAL CODES & STANDARDS: Adherence to wide variety of internationally recognized Codes beyond ASME including Pressure Equipment Directive (PED).

REACTOR & HEAT TRANSFER OPTIMIZATION: Customized design solutions and analysis for efficient and sustainable chemical processing.

PROCESS HAZARD ANALYSIS & RISK ASSESSMENT: Comprehensive probabilistic risk evaluations to enhance operational & personnel safety.

PRESSURE RELIEF SYSTEMS: Design and analysis of systems to prevent overpressure scenarios per API-510, API-521 and API-2000.

PROCESS SAFETY MANAGEMENT (PSM): Strategic implementation of safety protocols to manage risks effectively per 29 CFR 19010.119.

Finite Element Analysis (FEA)

Partner with LATTICEPT for your FEA needs and experience superior analytical capabilities that drive innovation and excellence. We offer high performance analysis services using GPU-accelerated solvers to meet any engineering schedule. Our expertise spans a broad range of applications including:

THERMO-MECHANICAL & STRUCTURAL ANALYSIS: Evaluate the combined effects of thermal and mechanical loads of structures and equipment.

HEAT TRANSFER ANALYSIS: Analyze static and time-dependent thermal transport through equipment and structures.

MODAL & DYNAMIC ANALYSIS: Determine the natural frequencies and study the effects of time-dependent loads and vibrations.

BUCKLING ANALYSIS: Assess the load and external pressures at which equipment may suffer collapse.

NONLINEAR ANALYSIS: Handle plastic material behaviors, large deformations, creep, and contact.

MULTI-PHYSICS SIMULATION: Integrate multiple physical models for comprehensive coupled analysis.

FLUID-STRUCTURE INTERACTION (FSI): Analyze the interaction between fluid flow and structural integrity by importing wall forces from M-STAR CFD.

WELDING SIMULATION: Visualize residual stresses and deformation from welding and joining processes.

Let's chat about our Services:

CFD and Process Optimization

Reactor, Heat Exchanger, & Boiler Design

Piping Analysis

Welding Engineering & Fracture Mechanics

Safety and Hazard Analysis & Simulation

*Visit our website at **LATTICEPT.COM** to learn more about LATTICEPT and all we have to offer! Contact Ben Turner at Ben.Turner@Latticept.com.*