

INTRODUCTION

SimuMech is a service-oriented mechanical engineering consulting firm focused on providing exceptional engineering services and innovative, sustainable solutions for clients worldwide. Headquartered in Pretoria, South Africa, The SimuMech Team provides a wide range of mechanical engineering services for petroleum refineries, process plants, food processing plants, mines, factories, steel fabricators and engineering workshops across the globe.

Simumech offers the following engineering services to its customers:

- Finite Element Analysis
- Structural integrity analysis
- Pipe Stress Analysis
- Pipe routing and design
- Design of API Storage Tanks
- Design of Pressurised Equipment
- General mechanical design
- Fitness for service assessments
- 3D Modeling and engineering drafting
- Professional Engineering verification and Sign-off
- Design of Material Handling Equipment
- Simumech's engineers are registered professional engineers at the Engineering Council of South Africa and are capable to sign-off any project no matter the size.

Simumech is focused on delivering outstanding quality work, on time and at affordable rates.



SERVICES

FINITE ELEMENT ANALYSIS

Simumech provides a wide range of Finite Element Analysis (FEA) and Consulting services to a variety of industries including Petrochemical, Power Generation, Medical and Mining, naming a few.

Our FEA engineers are highly experienced with exceptional analytical skills and technical knowledge and by utilising SolidWorks Simulation, can assist clients with the following advanced Finite Element Analysis services:

- Linear Static Analysis
- Non-linear Analysis
- Thermal Analysis (Transient and Steady State)
- Creep and Thermal Ratcheting Analysis
- Advanced Dynamic Analysis
- Shock & Vibration Analysis
- Fatigue Analysis
- Buckling Analysis
- Drop Test Analysis
- Natural Frequency and Modal Analysis
- Seismic Analysis
- Design Optimisation
- Design Verifications

API STORAGE TANK DESIGN

Simumech is the industry leader in the design of API above ground, field-welded and shop-welded storage tanks.

Simumech can supply the complete design package including the following:

- API Code calculations
- Finite Element Analyses for complex designs and loads
- Design and Fabrication drawings
- Sign-off by a Registered Professional Engineer

Sub- contracting some of the best Fabricators we can supply you with the most affordable tanks on the Market.



GENERAL MECHANICAL DESIGN

Simumech offers advanced mechanical engineering design and product development services to clients across multiple industries assisting them developing their ideas to products. Our innovative design engineers have comprehensive knowledge and experience and can assist clients with the following services:

- Turn-key Mechanical Product Design
- Conceptual Development
- Detailed Design
- Engineering Calculations
- Engineering Analysis and Simulation
- 3D CAD Modeling
- Design / Fabrication Drawings
- Prototyping / Manufacturing Support
Signed-off by a Professional Engineer

PRESSURE VESSEL DESIGN

The engineers of Simumech are known in the industry as the specialists Pressure Vessel Designers with extensive experience in the design of Pressure vessels, Buried vessels, Heat Exchangers and Columns. Simumech design vessels in accordance to an international Design Code including ASME VIII, PD5500, EEMUA 190 for buried vessels and the EN 13445.

Simumech can supply the complete design package including the following:

- Relevant Code Calculations
- Finite Element Analysis of complex designs and loads and components not covered by the code calculations
- Structural design of walkways, platforms, stairways and support clips
- Rigging and transportation studies
- Post weld heat treatment analysis
- Design and Fabrication drawings
- Sign-off by a Registered Professional Engineer

Sub- contracting some of the best Fabricators we can supply you with the most affordable custom built pressure vessels on the Market.



PIPE STRESS ANALYSIS

If it comes to Piping Design and Pipe Stress Analysis problems, Simumech is your answer for expert piping engineering solutions. By utilising industry leading software like Caesar II, Bosfluids and Solidplant for routing, Simumech offers a wide range of piping engineering services including the following:

- Static Pipe Flexibility Analysis Vibration & Shock Analysis
- Water Hammer Analysis (Surge Analysis)
- Pump Start-up & Shut-down Analysis
- Seismic Analysis
- Generation of Pipe Isometric Drawings
- Design of non-standard components
- Design of sealboxes
- Hot Tapping designs and analyses

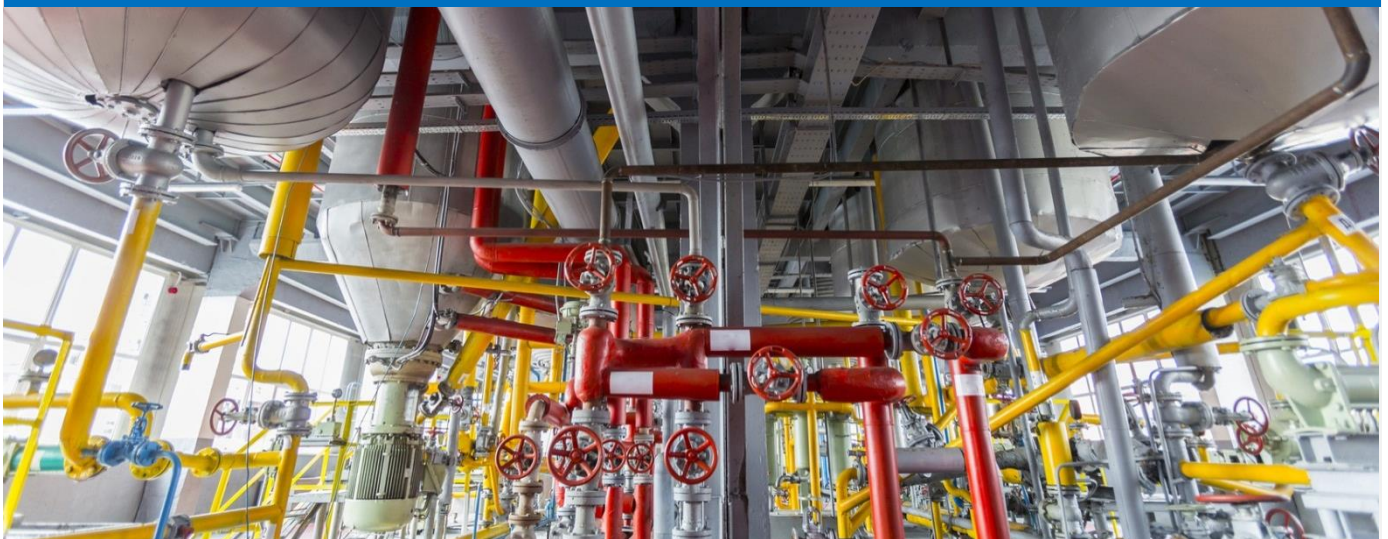
Simumech can perform pipe stress analysis in accordance to any International Piping Standard.

FITNESS FOR SERVICE

Knowing the safety and integrity of your equipment is important for any plant engineer and any other personnel that are working around these potential hazards. At SimuMech we work in close collaboration with inspection departments and plant personnel to perform Fitness for Service assessments according to API579.

Our team is capable to perform all three levels of assessments as specified in the Code.

Simumech especially focus on the level 3 assessments where complex finite element analyses are needed to verify if the equipment can be reliably operated for another time period or needs to be replaced. You can therefore make informed decisions to run, repair, rerate, redesign or retire your equipment.



PROFESSIONAL VERIFICATION AND SIGN-OFF

If your company has a product that needs to be signed-off by a registered professional engineer you are at the right place. At SimuMech we provide our clients with the service of an experienced registered professional engineer.

Typically the process that we follow is to verify the design calculations, fabrication drawings and the fabrication documentations such as the material certificates and NDT inspections. If design documentation is not available we can also assist by performing the relevant design calculations and compiling a design and fabrication data pack.





CONTACT US

Address: 54 Van der Schyff Street
Wonderboom
Pretoria
South Africa

Tel: +27(0)12 567 7868

Email: info@simumech.com

Web: www.simumech.com