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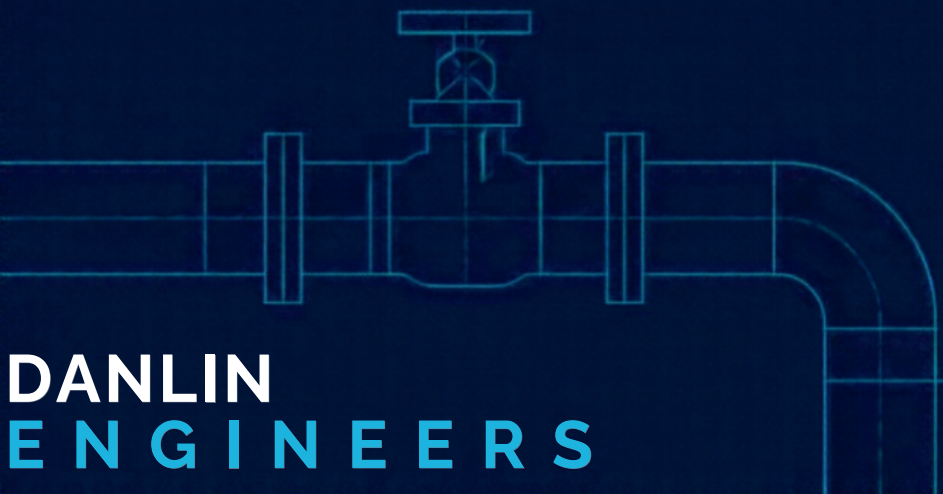
GEN Z

SURGE ANALYSIS

Transient Modelling & Water Hammer Analysis



Understand the Flow.
Control the Pressure.



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Why Surge Analysis ?

A change in operating condition can create pressure waves that travel through the system. These waves generate forces and stresses that must be understood and controlled. Surge analysis provides the insight needed to manage transient behaviour with confidence.

01

steady flow

02

transient event

03

controlled response

Key aspects addressed

- Water hammer
- Surge forces
- Pipe wall stress
- Transient behaviour



The required inputs for Surge Analysis,

01 PFD/P&ID and layout

02 Fluid and pump data

03 Initial operating state

04 Scenario definition

05 Applicable criteria

06 Protection philosophy



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Build the Transient Model



01 Create nodes/elements

02 Connect network

03 Set element attributes

04 Define controls/events

05 Check model

Engineering Data → Connected Model → Engineering Insight

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Transient Modelling Analysis

01 Identify scenarios
Define credible events, operating conditions and boundary changes to be assessed.

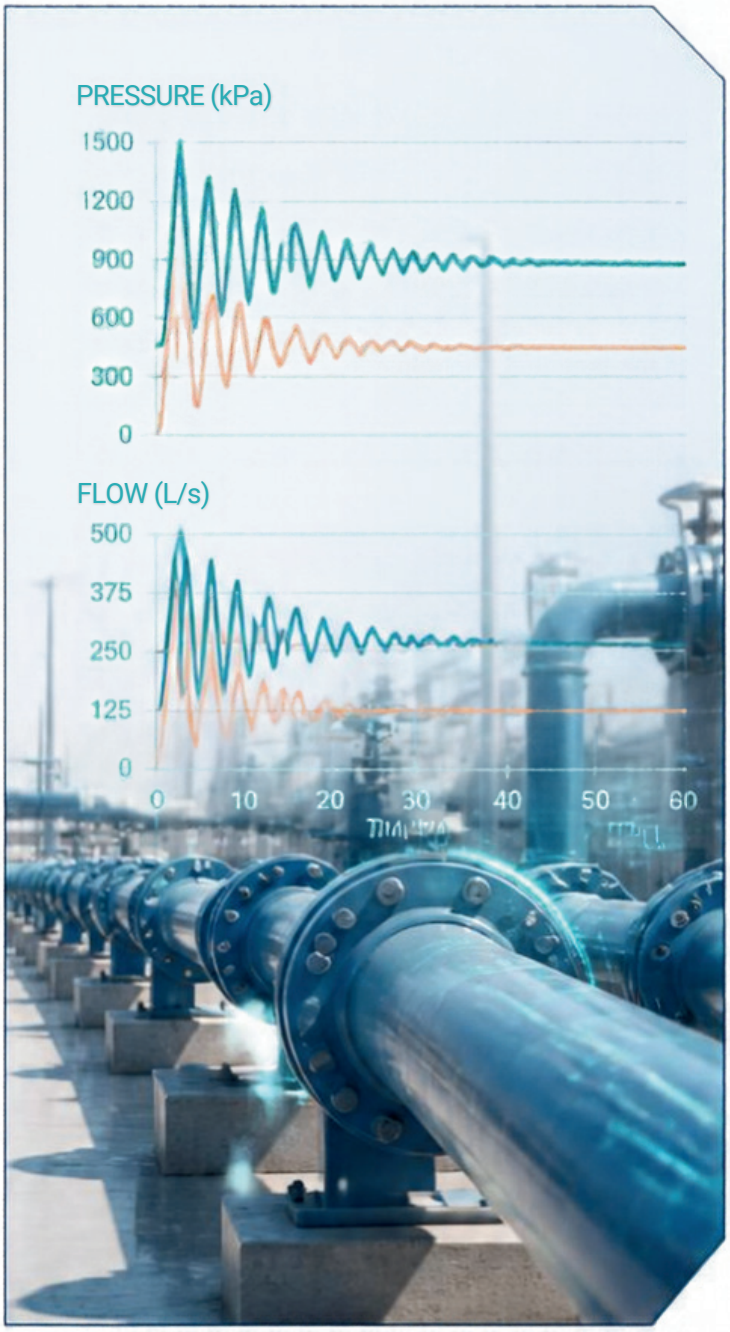
02 Establish steady state
Build and solve the steady state model to confirm pressures, flows and validation.

03 Run transient
Simulate the scenario using appropriate transient settings and solver controls.

04 Review time history results
Analyse pressures, flows and other responses over time against design criteria.

05 Mitigate and recommendation
Implement mitigation measures or control adjustments and re-run to confirm improvement.

06 Report and consolidate
Document findings, assumptions, results and recommendations for decision making.



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Audience

- Process Engineers
- Piping Engineers
- Instrumentation Engineers
- EPC/Project Professionals

Highlights

- Industry-oriented modelling
- Scenario-based analysis
- Results interpretation
- Mitigation and reporting

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Program Details



Duration
25–30 hours

Mode
online

Fee
INR 31,999 + GST

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