

Necessary information for static and dynamic analysis of piping systems /

Pipe stress analysis

1. Pipe run in the form of
 - Dimensional piping isometrics or
 - Dimensional pipeline plans or
 - Pipeline as a CAD file in DWG, DXF or STP-format

2. Design and operating parameters
 - Design pressure
 - Design temperature
 - Operating pressure (for different load cases)
 - Operating temperature (for different load cases)
 - Mounting Temperature
 - Density of the flow medium (at the aforementioned temperatures and pressures)

3. Additional loads
 - Wind loads (wind speed or wind zone / terrain category)
 - Snow loads
 - Ice loads
 - Other essential additional loads (deposits, mudguards, ..)
 - Seismic loads (g-factor or earthquake spectra)
 - Pressure surge (results from a pressure surge analysis or closing time of valves / follow-up time of pumps, mass flow and material parameters of pipe)
 - Dynamic loads from vibrations (boundary point deformation, excitation frequency)

4. Pipes and fittings
 - In the form of a pipe spec or
 - Pipes and fittings Dimensions (outer diameter x wall thickness / standard)
 - Materials / Material designations
 - Pressure level at flanges
 - Corrosion allowance

5. Valves / Installation Components
 - Data source or
 - Weight
 - Overall length
 - Flanged or welded connection

6. Insulation / Thermal insulation
 - Insulation (density, thickness, material)
 - Coat (density, thickness, material)

7. Support concept
 - Type (Anchors, sliding supports, guides, spring hanger) and position of brackets
 - With knowledge of possible mounting positions, the type of supports will be result of pipe statics
8. Connection points
 - Connecting dimensions of tanks, pumps, compressors, heat exchangers
 - Allowable connection loads on the nozzles
 - Margin offsets of connection points (or operating parameters, equipment drawing)
 - Establishment of the next fixed point outside the project boundaries
9. Contract specifications
 - Project / Contract limits (= boundaries of the documentation)
 - Calculation limits (integration of the project / contract)
 - If necessary, specifying the calculation software / norm

Missing values are researched our part. Sources used and assumptions will be described in the documentation.