

Failure Analysis of Pressure Systems

We have for many years been involved in the field of failure analysis of pressure systems.

The work is typically carried out for process plants and boiler technologies. In industries such as these regular inspections take place to detect any sign of a defect, some defects being visually obvious such as cracks in welds. If a defect went undetected the result could be disastrous both safety wise and financially. It is once a problem has been detected that we are commissioned. The company's engineers determine whether the presence of these defects is in any way detrimental to the continued safe operation of the units and therefore can predict what design life the unit has left.

Our stress analysis department is amongst the world leaders. Its expertise in Finite Element analysis allows the engineers to test concepts by means of computer generated models. This allows stress analysis under many different load cases to be considered for both linear, non-linear and transient analysis types. Predictions of thermal and mechanical behaviour of structures can be made.

Models of pipework are usually addressed using the Caesar pipework analysis software package which permits detailed stress and flexibility analysis to coded requirements. This software package was used in a large contract to analyse fuel gas piping at a power plant. Vessel models however are typically constructed using the ANSYS suite of plate and brick elements with adequate mesh refinement in the region where weaknesses are likely to occur.

