STRESS ANALYSIS

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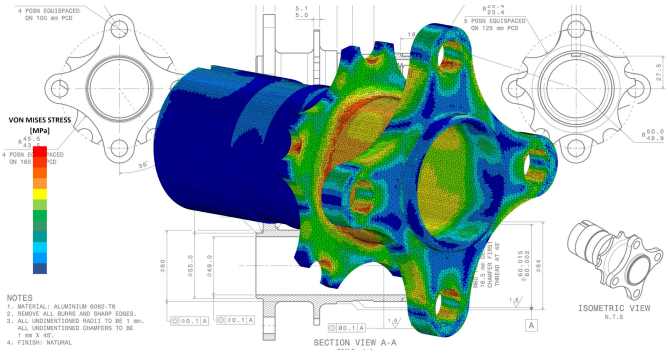
At North West Projects, our mechanical engineering design is supported by a dedicated stress analysis team. This allows us to demonstrate that the mechanical system in question is capable of withstanding any externally applied loading.

Fundamentally, stress analysis is concerned with the calculation of internal pressures within a structure for a specified system of loads and constraints. Analysis of structures is not solely limited by stress; deflections and strains are equally important and are utilised where necessary to prove that a design solution is suitable. By considering these parameters and comparing to criteria defined within harmonised standards and/or client specification documents, it is possible to substantiate the design using well-established theory to prove that the system under consideration is suitable for its intended purpose. This allows for mitigation of issues within structural design at the conceptual design stage and prevent costly remedial works during installation, testing and operation of equipment.



Within our stress analysis team, analysis of structures is realised via two primary methods; analytical techniques utilising classical hand calculations and numerical methods which require implementation of specific computer software employing the Finite Element Method (FEM) for solution.

Structural hand calculations are produced within proprietary Mathcad software. Static and fatigue assessments are carried out for a variety of structural items and mechanisms. Generally, structures analysed include but are not limited to; platforms, lifting equipment, shield doors, containment doors, bogie and rail systems and recovery mechanisms.

Our significant experience and capability of producing analysis which utilises the following Finite Element (FE) software packages:

ANSYS	LS-DYNA	STAAD Pro	CEASAR II

We have developed substantial experience in the following areas of FE analysis:

Linear	Non-Linear	Computational Modelling
Transient Loads	Seismic Qualification	Explicit Dynamic Loads
	Pipe Stress	

Our team has successfully delivered analysis reports for bespoke items which conform to the requirements in the following British/European/International codes:

BS 2573	BS EN 13001	BS EN 13155	BS 5950
BS EN 1990	IBC	ASCE 7-10	ACI 349-06
BS EN 14492	E.M 1.001	ASME B31.3	