



Engineering Design Service

Our team of experienced piping and vessel engineers, who provide user support to all PSA5 licensees, offers a design and analysis consultancy service for pipework, plant and ancillary equipment to the petrochemical, power, offshore and manufacturing industries. They will also be happy to give you a competitive quotation if your own team of engineers is struggling to cope with peak workloads.

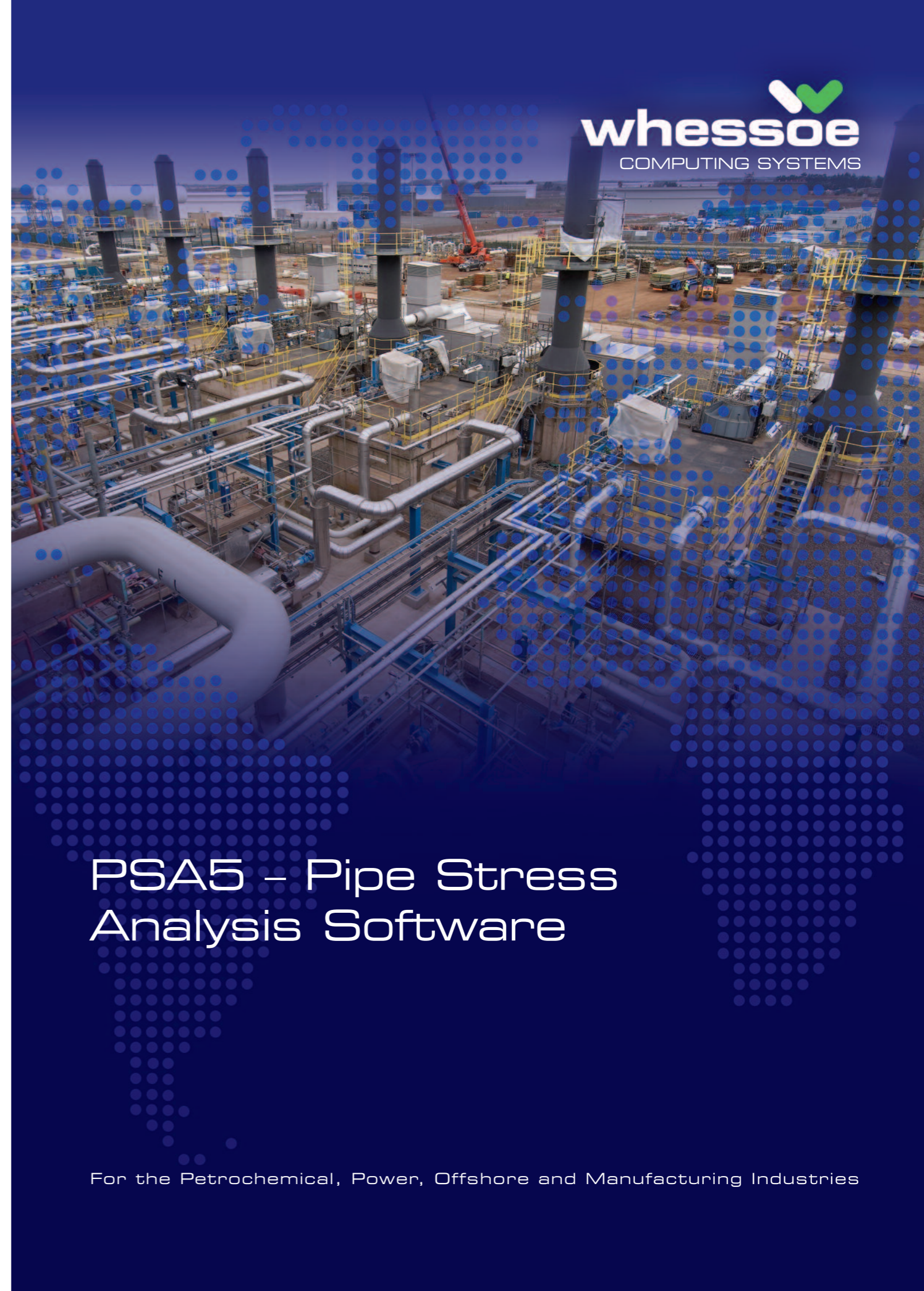
Services covered include:

- Site investigations
- Preliminary analysis of pipe routes
- Pipe stress analysis
- Pressure systems regulations
- Surge analysis
- Stress isometrics
- Constraint and anchor loadings
- Site installation checks
- Support design, specification and scheduling
- Third party verification work
- Engineering reports and recommendations
- Pressure vessel design
- Heat exchanger design
- Flange design
- Structural calculations for vessel attachments
- Design of vessel supports.



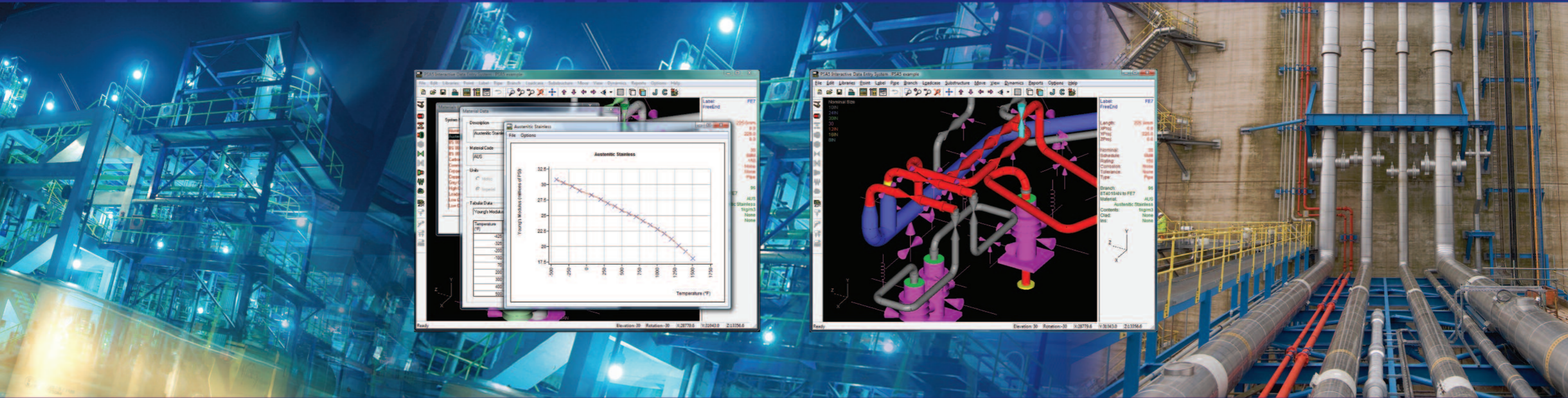
Whessoe Computing Systems
Whessoe Technology Centre
Morton Palms
Darlington
County Durham
DL1 4WB
United Kingdom

T +44 1325 390000
F +44 1325 390008
E sales@wcompsys.co.uk
W www.wcompsys.co.uk



PSA5 – Pipe Stress Analysis Software

For the Petrochemical, Power, Offshore and Manufacturing Industries



Whessoe Computing Systems – PSA5

Overview

Pipe stress analysis and code compliance checking is a complex and time consuming task. The PSA5 software package from Whessoe Computing Systems helps you complete such calculations more quickly and accurately than ever. Running on a standard PC, PSA5 can stress analyse the most complex piping systems subjected to thermal, gravitational, wind, shock and seismic loads and produce stresses and compliance reports for a wide range of international design codes, including:

- ASME III Class 1, 2 and 3
- ASME B31.1
- ASME B31.3
- ASME B31.4
- EN 13480
- BS806
- BS7159

To ensure that PSA5 keeps pace with design codes and technological changes, Whessoe employs a dedicated team of software and piping engineers to provide first class support to users.

Whessoe has a 200 year history, a century of experience in designing and fabricating piping systems for the power and petrochemical industries, and with PSA5, a track record of 50 years as a de facto standard

with plant owners, contractors, piping fabricators, design consultants and engineering insurance/inspection authorities.

Technical Features

PSA5 has a straightforward user-friendly interface for creating and editing piping models. Standard and user-extendable libraries are provided containing properties for a wide range of materials and fittings. You need only specify information such as nominal pipe size, schedule, material and temperature - which are then assigned automatically as pipe routes are defined.

The model is displayed in centre-line or 3D mode and can be modified on a global or local basis throughout the design cycle. Supports, anchors, point loads and applied deflections can be entered at any time and extensive use is made of colour-coding for ease of interpretation. Powerful viewing and editing facilities make entering complex models simple.

PSA5 can carry out static analysis of the piping models subject to various categories of load including: self weight, live weight, thermal expansion, imposed deflection, wind, pseudo-static loads and internal pressure. The forces and moments exerted on all external attachments are calculated, together with forces, moments, deflections and rotations throughout the model.

Full dynamic analysis can also be performed, evaluating the response of the model to loads that vary rapidly with time, such as pressure surges and earthquakes. PSA5 can perform uniform support motion, independent support motion and force time history analysis.

Reporting and results checking - PSA5 provides a comprehensive graphical results interrogation facility that uses the pipework display as an index into the analysis results. This allows you to quickly investigate points of interest and produce reports in various formats. External reactions at supports and equipment can be conveniently passed to civil and structural disciplines.

Additional analysis capabilities include automatic support selection, thermal transient analysis and rotating machinery compliance analysis to NEMA Sm23, API617 and API610.

Quality Assurance

The assurance of both quality and accuracy are very important to Whessoe Computing Systems. PSA5 has been fully validated by comparing the answers obtained with hand calculations, other software, published results, analytical solutions and previously validated releases.

Whessoe Computing Systems operates a QA programme designed to meet the requirements of ISO9001 and the ASME Boiler and Pressure Vessel Code Section III. This quality system has been subject to third party audit by accredited certification bodies and Whessoe Computing Systems has been registered as a certificated organisation.