EnginSoft is a premier consulting firm in the field of Simulation Based Engineering Science (SBES) with a global presence. It was founded in 1984, but its founder and initial employees had been working in SBES since the mid '70s. Throughout its long history it has been at the forefront of technological innovation and remains a catalyst for change in the way SBES and CAE technologies in general are applied to solve even the most complex industrial problems with a high degree of reliability.

Today, EnginSoft is comprised of groups of highly qualified engineers, with expertise in a variety of engineering simulation technologies including FEM Analysis and CFD, working in synergic companies across the globe. We are present in Italy, France, Germany, the UK, Turkey and the U.S.A. and have a close partnership with synergetic companies located in Greece, Spain, Israel, Portugal, Brazil, Japan and the U.S.A.

EnginSoft works across a broad range of industries that include the automotive, aerospace, defense, energy, civil engineering, consumer goods and biomechanics industries to help them get the most out of existing engineering simulation technologies.

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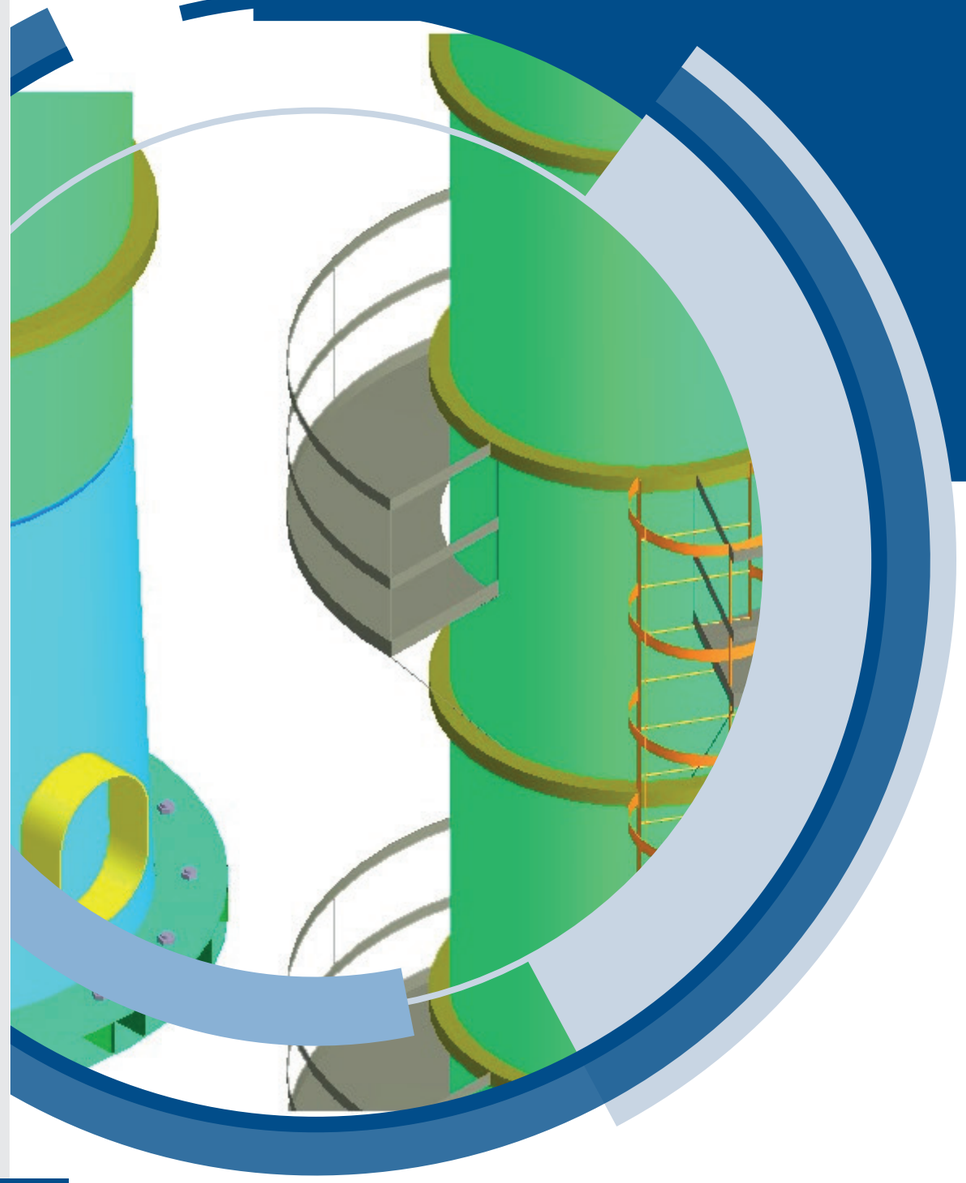


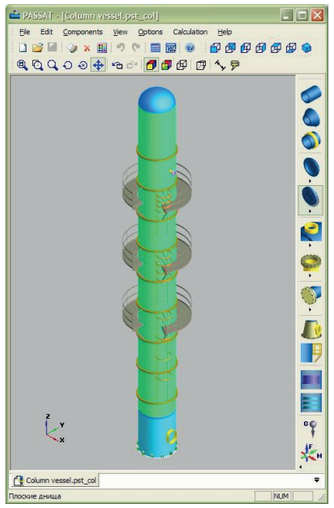
DATA SHEET

PASS START-PROF

Passat:
Stress and Stability Analysis of Vessels and Apparatuses Software

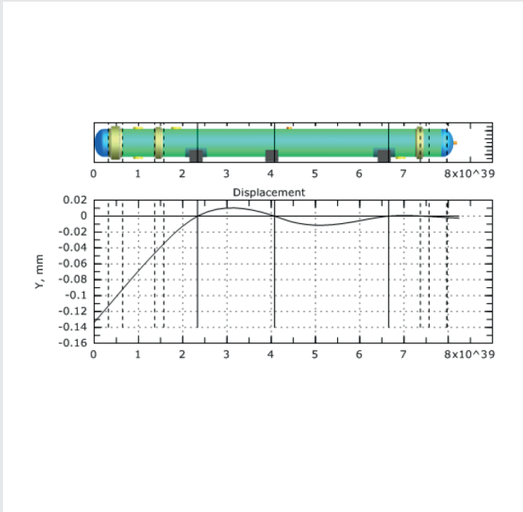
The PASSAT program is designed for the calculation of stress and stability of vessels, apparatuses and their elements for the purpose of evaluating carrying ability in operating conditions, as well as during the assembling process and testing. The program is created for designing, revamping and testing of vessels and apparatuses, as well as for making check calculations of oil-refining, chemical, petrochemical, natural gas, petroleum and other related industries.

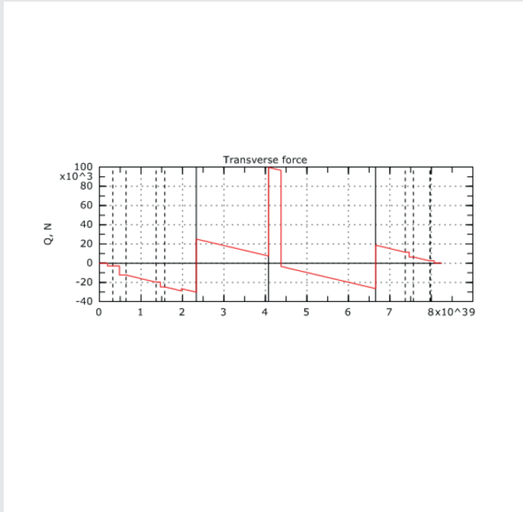
The basic PASSAT module calculates stress and stability of horizontal and vertical vessels and apparatuses in accordance with Russian normative documents and ASME VIII Div. 1 code.

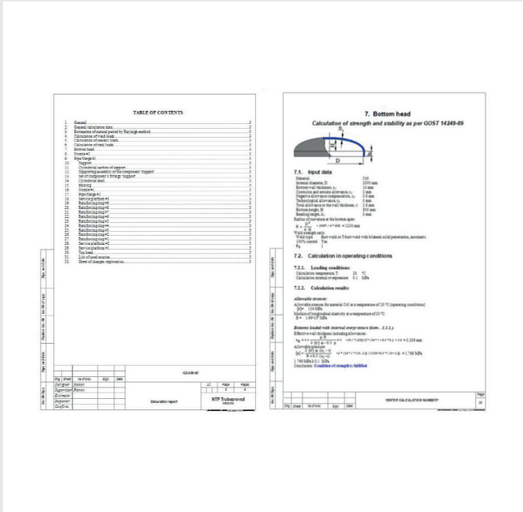


Passat is a product

PSRE
NTP Truboprovod
Piping Systems Research & Engineering Co.







Passat:
Stress and Stability Analysis of Vessels and Apparatuses Software

Calculations are made on the element by-element basis and include the following:

- ✔ cylindrical shells (smooth and reinforced by stiffening rings);
- ✔ conical transitions;
- ✔ welded and detachable heads (spherical, elliptic, torispherical, conical, flat including those with ribs, spherical unbeaded);
- ✔ cylindrical shells in places of intersection with saddle supports for horizontal vessels and apparatuses;
- ✔ cylindrical shells and heads in places of intersection with supporting lugs and legs for vertical vessels and apparatuses;
- ✔ reinforcement of openings;
- ✔ tie-ins of nozzles into the shells and dished heads, calculation of nozzle's fittings;
- ✔ flange joints of vessels and apparatuses;
- ✔ flange joints of valves and pipelines;
- ✔ column vessel elements protection against wind and seismic loads;
- ✔ supporting shells and foundations of column vessels.

Functional capabilities of the program:

- ✔ automatic estimation of design values such as weight, gauge lengths, characteristics of reinforcing rings (both in cylindrical shells and in saddle supports), circumferences chords lengths, etc.;
- ✔ estimation of effective thicknesses (including those of external pressure), as well as assumed values for pressure, forces and moments;
- ✔ when changing geometrical parameters or loading conditions in the element, an automatic change in adjacent elements of the whole model will occur after a warning — this way the model's integrity is maintained;
- ✔ selection of used materials from the database with an opportunity of its replenishment; allowable stress, values of elasticity moduli, etc. are inserted and changed automatically by the program when changing material, temperature or wall thickness;
- ✔ flange joint parameters selection from the database of standard flanges (as per ASME 16.5, ASME 16.47, EN 1092-1, GOST);
- ✔ calculation of apparatuses with an arbitrary number of supports, with analysis of movements and series tripping of "outof-service" supports as per SA 03-004-07 procedure;
- ✔ determination of the fundamental period of vibration for column vessels with an arbitrary number of elements;
- ✔ automatic estimation of position and characteristics of the most hazardous cross-section of the supporting shell.