Aspen Shell & Tube Mechanical

Complete mechanical design or rating of shell and tube heat exchangers and basic pressure vessels

Aspen Shell & Tube Mechanical is a set of tools for the complete mechanical design or rating of shell and tube heat exchangers and basic pressure vessels. Together, these tools help automate the lifecycle package—from conceptual thermal design, to detailed design, to fabrication of the heat exchanger—resulting in reduced costs, improved quality, and increased efficiency.

Key Technical Features

- **Operating modes:** Design, rating
- **Codes supported:** ASME Section VIII, Div. 1, EN13445, CODAP, AD-Merkblätter
- **Standards supported:** ASTM, DIN, AFNOR, TEMA Classes B, C, & R
- **Material databases:** ASME, DIN, CODAP, EN, JIS
- **Costing databases:** Company operating standards, material standards, welding standards, labor efficiencies, material costs
- **TEMA types:** Incorporates all TEMA exchanger types
- **Expansion joints:** Flanged only, flanged and flued, various types of bellows
- **Supplemental calculations:** Zick stress analysis, minimum design metal temperatures, simultaneous internal/external pressure design, nozzle loads per WRC 107 or Heat Exchange Institute, maximum allowable working pressures, material cladding, and wind and seismic loads
- **Graphics:** Fully dimensioned setting plan, tubesheet layout, and detailed component drawings

Faster, More Efficient Mechanical Design

Different companies have different requirements when it comes to mechanical design. Fabricators need to get bids out in a timely fashion, owner operators need to reconcile differences between thermal and mechanical designs, and engineering & constructors require efficient tools for fast-track projects to minimize engineering hours.

Aspen Shell & Tube Mechanical provides a complete mechanical design package that greatly improves engineering efficiency. It provides a two-way interface to AspenTech's thermal design program, automating transfer of information, and is the only program that optimizes the design of all mechanical components. The results include detailed code calculations, customized cost estimates, detailed drawing package, and complete bill of materials.

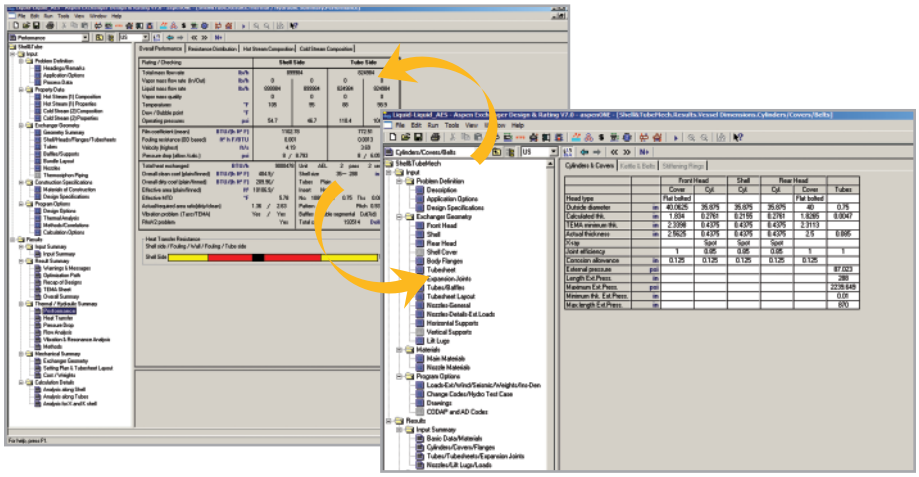
Key Benefits

- Reduce costs through streamlined designs—*Aspen Shell & Tube Mechanical* provides optimized equipment designs for a given set of design conditions, resulting in typical savings of 10% or more on the equipment cost per heat exchanger.
- Meet highest quality standards—Extensive material properties data banks, together with accurate thermal data from Aspen Shell & Tube Exchanger, results in accurate stress calculations conforming to internationally accepted code standards and safety practices.
- Increase engineering efficiency—Enables increased emphasis on fast-track front-end engineering through fully integrated tools for process design, exchanger thermal sizing, exchanger mechanical design, cost estimation, and drawings production, which are pre-requisite for cost-effective projects.

Added Value of Integration

When used with Aspen Shell & Tube Exchanger, *Aspen Shell & Tube Mechanical* provides bi-directional data transfer, eliminating the need for data entry and ensuring consistency between thermal and mechanical designs. This enables engineers to both optimize and efficiently validate the thermal and mechanical designs of shell and tube heat exchangers.

When used as a standalone program in design mode, *Aspen Shell & Tube Mechanical* can optimize the design of most components including flanges, tubesheets, expansion joints, supports, shell, and nozzle reinforcement. It conforms to TEMA standards and several international codes including ASME Section VIII, Div. 1, CODAP, AD Merkblätter, and EN13445.



Design conflicts between thermal and mechanical designs are immediately identified with the bi-directional link between ***Aspen Shell & Tube Exchanger and Aspen Shell & Tube Mechanical***.

aspenONE Process Engineering

Aspen Shell & Tube Mechanical is a key component of *aspenONE Process Engineering* for the process industries. *aspenONE Process Engineering* is an integrated lifecycle solution—from conceptual design through to plant start-up and operations support—enabling you to model, build, and operate safer, competitive, and more reliable process plants. Companies are able to reduce capital and operating costs, increase engineering efficiency and quality, and accelerate time-to-market with payback in months instead of years.

About AspenTech

AspenTech is a leading provider of award-winning process optimization software and services. AspenTech's integrated aspenONE™ solutions enable manufacturers to reduce costs, increase capacity, and optimize operational performance end-to-end throughout the engineering, plant operations, and supply chain management processes.

For more information, visit **www.aspentech.com**.

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