



## AutoPIPE<sup>®</sup> Vessel Ultimate

Complete Software for Designing Pressure Vessels, Shell and Tube Heat Exchangers, Air Coolers, and Storage Tanks

AutoPIPE Vessel Ultimate offers fully automatic workflows, including complete global codes and applied loadings for pressure vessels, shell and tube heat exchangers, air coolers, and storage tanks. The software promotes greater productivity, safer designs, cost-effective manufacturing, and improved project collaboration. AutoPIPE Vessel Ultimate performs truly optimized static equipment design in minutes.

### **BOOST PRODUCTIVITY OF SKILLED ENGINEERING RESOURCES**

AutoPIPE Vessel Ultimate provides the most productive, cost-effective, and accurate designs for safe operation under all loading conditions.

Using new and older design codes and material standards from any year, AutoPIPE Vessel Ultimate improves flexibility for rerating and revamping existing equipment. These design codes and material standards enable you to design for brownfield and greenfield projects. They also shorten design time and rework by eliminating guesswork, and they reduce training time by providing a single, easy-to-use application for global projects. The software ensures confidence in static equipment design and increases competitiveness by delivering a higher quality design.

### **OPTIMIZED AND FLEXIBLE EQUIPMENT DESIGN AND MANUFACTURING**

With AutoPIPE Vessel Ultimate, manufacturers and designers can evaluate options to provide comprehensive and effective solutions for all loading and manufacturing scenarios in minutes. Support for manufacturing component details and drawings, installation, and operating conditions enables superior designs and reduces manual drawing time and rework, which enhances your competitiveness.

Key features include:

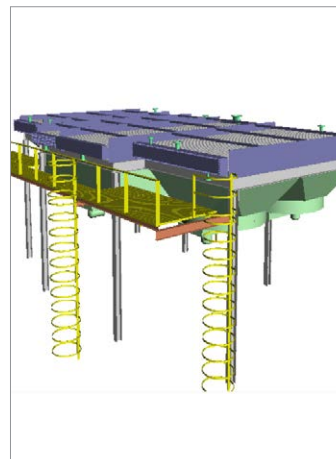
- ◆ Detailed code-based design and modeling
- ◆ Fatigue, wind, seismic, lifting, and rigging analysis
- ◆ Vessel support design and analysis
- ◆ Pressure testing
- ◆ Automatic drawing production
- ◆ Cost estimation

### **FASTER TIME TO PRODUCTION**

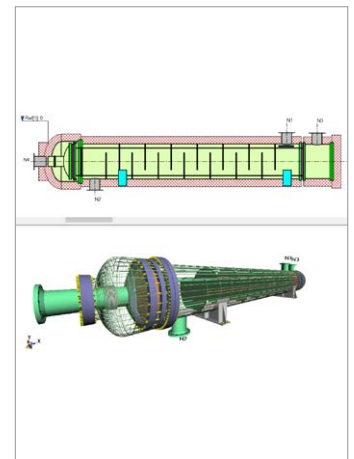
Comprehensive, flexible modeling and an easy-to-use interface empower designers to find solutions quickly, improve the efficiency of modeling, and increase profitability. This ability allows manufacturers to improve productivity and delivery time and to perform easier, more accurate design and analysis.

### **ENHANCED COLLABORATION**

AutoPIPE Vessel Ultimate imports thermal design data from HTRI, AspenTech, Prosim, and Honeywell software to automate heat exchanger model creation. It shares data with plant design software, such as AutoPLANT<sup>®</sup> and PDS, and shares nozzle load data with AutoPIPE while automatically producing drawings in all major CAD formats (including MicroStation<sup>®</sup> and AutoCAD). Through its superior interoperability, AutoPIPE Vessel Ultimate ensures greater efficiency in the supply chain and greater alignment with engineering companies. By enabling engineers to collaborate more efficiently, it reduces iterations and errors, enables better quality designs, unifies workflows across a comprehensive set of capabilities, and improves data handover to operations and maintenance.



*A design for a forced draft air cooler.*



*Designs for an AES type heat exchanger.*

## SYSTEM REQUIREMENTS

**MINIMUM:** Intel® or AMD® processor 3.0 GHz or greater, Windows 8 Professional (64 bit) or higher, Windows 10 (64 bit) or higher, Microsoft Office 2013 or higher, 256 MB RAM, 1 GB hard disk, any industry-standard video card that supports OpenGL 3D graphics

**RECOMMENDED:** Adobe Acrobat Reader 10.0 or higher

# AutoPIPE Vessel Ultimate At-A-Glance

## DESIGN CODES

- ◆ ASME VIII Div. 1 and Div. 2
- ◆ BS PD 5500
- ◆ EN 13445
- ◆ CODAP Div. 1 and Div. 2
- ◆ AD Merkblätter
- ◆ GOST R 52857, 34233
- ◆ GB-150, 151
- ◆ API 650 (Storage tanks)
- ◆ API 661 (Air coolers)

## OCCASIONAL LOAD CODES

- ◆ ASCE 7
- ◆ ANSI A58.1
- ◆ UBC and IBC
- ◆ EN 1991-1-4 and 1998
- ◆ BS 6399 Part 2 and CP3 Part 2
- ◆ DIN 4149
- ◆ AD-Merkblätter S3/0
- ◆ IS 875 Part 3 and 1893
- ◆ NBR 6123
- ◆ Neige et Vent 65 - Neige 84
- ◆ NBE AE 88
- ◆ DL 235/83
- ◆ NBC Canada
- ◆ GOST R 51273
- ◆ Parasismique PS 92 and PS 69
- ◆ LNEC
- ◆ Turkish rules
- ◆ NB/T 47041
- ◆ GB 50011

## PRESSURE VESSELS AND SHELL AND TUBE HEAT EXCHANGERS

- ◆ Design horizontal and vertical pressure vessels, columns, vessels with boots, and jacketed vessels
- ◆ Design TEMA type exchangers for all shell types (E, F, G, H, J, K, X) and all TEMA front (A, B, C, D, N) and rear end types (L, M, N, S, T, U, and W, but not P type)
- ◆ Include horizontal support for up to 10 saddles with rigid or spring stiffness and vertical support with skirt, legs, brackets, intermediate skirt, and rigid or flexible anchor base
- ◆ Reinforce nozzles and flange design up to all major global standards, including EN 13445 Annex G/EN 1591
- ◆ Perform full fatigue analysis of welded components to ASME VIII, PD 5500, CODAP, ADM, GOST, and EN 13445
- ◆ Evaluate advanced lifting and rigging analysis every 10 degrees for on-site installation
- ◆ Utilize comprehensive in-situ design, transportation, and built-in installation design capabilities
- ◆ Generate hydrotest calculations
- ◆ Perform wind vortex shedding analysis, blast, and motion load analysis
- ◆ Draw plate cutting profiles

- ◆ Use full weld details for nozzles and reinforcement including location of all component welds
- ◆ Design flanges (gasket and bolting details and installation), baffles (six types), tubesheets, bundles, tie rods, sealing strips, and support plates, fully detailed and ready for fabrication
- ◆ Design metal bellows expansion joints according to ASME, EJMA, CODAP, EN, and AD standards
- ◆ Design flanged and flued expansion joint design based on TEMA 8th standard and TEMA 9th standard (Finite Element Analysis based)

## AIR COOLERS

- ◆ Design air coolers as per API 661
- ◆ Model detailed forced and induced draft air coolers with bays and bay components, including foundation layout, fans, plenum, platforms and stairs, steel structures with stairs, and walkways
- ◆ Model air cooler bundle with four header types (flanged cover plate, stud cover plate, bonnet, and plug), tubes, and bundle frame, plus import HTRI file for air cooler bundle details

## STORAGE TANKS

- ◆ Design storage tanks, as per API 650
- ◆ Choose from three design codes for storage tanks: 1-foot method, Variable Design Point Method, and Appendix A
- ◆ Design for ASCE-7 wind and seismic codes, including wind girder and overturning stability calculations
- ◆ Design anchor supports and perform Appendix F calculations
- ◆ Design self-supported/supported tank roofs, compression rings, snow load, infrangible and frangible design, supported roof design with girders and rafters, platforms, and stairs
- ◆ Generate detailed drawings including floor and tank structure layout

## GENERAL

- ◆ Design comprehensive pressure vessels, shell and tube heat exchangers, air coolers, and storage tanks, including heat exchanger tube bundles, air cooler bays with associated components, storage tank roofs with compression rings, anchor bases, vessel supports, insulations, lifting lugs, trunnions, insulation, external loads, and moments
- ◆ Design for erected, lifting, operating, test, and user-defined loading conditions, as well as nozzle reinforcement, flange design, support design, and vessel deflection and rotation
- ◆ Automate detailed drawing production in seconds for fully dimensioned engineering and manufacturing drawings, customized drawing templates and views, tables, and bills of material
- ◆ Perform detailed cost estimates with customizable formulae and labor/material cost inputs
- ◆ Export to 2D/3D CAD formats, including BricsCAD, MicroStation (2D and 3D), AutoCAD (2D and 3D DWG), and SolidWorks (3D); export to IFC file format; export to STAAD® Foundation Advanced via iTwin® Analytical Modeling; import nozzle loads from AutoPIPE; import from and export to PDS; and import from AutoPLANT
- ◆ Customize company standards for saddle supports and nozzle loading
- ◆ Import heat exchanger thermal data from HTRI, AspenTech, Prosim, and Honeywell