AMPreVA Pressure Vessels and Heat Exchangers Engineering Application Software

Pressure Vessel Design Calculations Detailed 3D Production Detailed Models Layout and Fabrication Drawings Production List and Bill of Material Fabrication Operation Details and Costing



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Rapid Design and Detailing

AMPreVA's feature-based environment enables the rapid configuration, design, and detailing of pressure vessels and automates the generation of:

- Design calculations per ASME Section VIII Div I and Div II, including seismic, internal and external pressures, and wind loading
- Detailed 3D models and to-scale drawings including general arrangements, weld maps, fabrication, assembly, nesting, and CNC
- Bill of Quantities (BOQs), Bill of Materials (BOMs), weights reports, welds reports, and cost calculations
- 3D Meshing and Finite Element Analysis models

Export of drawings to AutoCAD®, BOMs and BOQs to Excel®, and import of COMPRESS® and PVElite® models are supported.

Easy-to-use Graphical User Interface

AMPreVA supports a fully interactive, easy to use graphical user interface customized for the rapid design of pressure vessels.

The design, configuration, and layout of the shells, heads, supporting structure, nozzles, manways, and other internal and external features and appurtenances are supported.

The configuration and detailing of segmented heads and shell courses, flat plates layout patterns, jackets, nozzles, manways, welding edges preparation, and other production details are quickly and easily specified.

A complete vessel design can be configured and detailed in less than two hours including the automatic generation of general arrangement and fabrication drawings, bill of material, cost estimation, and other reports.



Vessel Designs and Configurations

AMPreVA supports a wide range of vessel designs and configurations

- Horizontal vessels with multi-sectional shells with different diameters and concentric or eccentric transitional sections. Various supports including saddles and legs are provided.
- Vertical vessels with legs, skirts, or support rings.
- Columns with multi-sectional shells with different diameters and transitional sections.
- Vessels with half-pipe jackets on heads and shells.
- UHX heat exchangers with detailed models for layout of tube sheets, baffles, tube arrangements, tie rods, and other components.

Ladders and Platforms

AMPreVA supports the configuration and detailing of multi-sectional circular and square platforms.

Integrated ladders with cages, climbing devices, safety cables, gates, and removable start ladders can be created and developed from the custom interface and can be configured with bolted as well as welded clip attachments.

Detailed elevation, assembly, and manufacturing component drawings for the platforms and ladders are fully automated and created to-scale.

The generation of the production components list and material purchase list for manufacturing is also supported.

	LENGTH	MATL		WEIGHT	DRW. NO.
		SPEC	REMARKS		
					1.0
/8" IKR 1 1/2" SF 5/16" SF THK.		SA-240 3	104	[1184]	8
/8" IKR 1 1/2" SE 5/16" SE TUK		54-740 2	104	[1252.6]	e
TO THE ATE OF 3/10 OF THE.		JM-240 3		[4656.0]	0
MEPLATE		SA-204-3	304L	[0]	8
5 3/8"	4"	SA-204-3	304L	[1.21]	8
				[26.43]	12A
	6 5/16"	SA-312 T	P304 WLD &	2.23	
NGE, 3 1/16" I.D.		SA-182 F	304 <= 5	11.43	
NGE		SA-182 F	304 <= 5	11.43	
LTS	3"	SA-193 B	37 BOLT <= 2	1.34	
HEX. NUTS					
				[14.13]	12A
	6 5/16"	SA-312 T	P304 WLD &	1.16	
NGE, 2 1/16" I.D.		SA-182 F304 <= 5		6.05	
ANGE		SA-182 F304 <= 5		5.67	
DLTS	2 3/4"	SA-193 B	37 BOLT <= 2	1.25	
HEX. NUTS					
				[55.1]	12A
	10 1/16"	SA-312 T	P304 WLD &	9.72	
1/2"		SA-240 304		4.97	
NGE, 8" I.D.		SA-182 F	304 <= 5	40.41	
				[3.04]	12A
	6 7/8"	SA-312 T	P304 WLD &	0.62	
NGE, 1 1/16" I.D.		SA-182 F	304 <= 5	2.42	
				[39.37]	128
	12 1/16"	SA-312 T	P304 WLD &	10.84	
1/2"		SA-240 304		4.09	
NGE, 6 1/16" I.D.		SA-182 F	304 <= 5	24.44	
				[27.55]	128
	8 7/8"	SA-312 TP304 WLD &		3.35	
NGE, 3 1/16" I.D.		SA-182 F304 <= 5		11.43	
ANGE		SA-182 F304 <= 5		11.43	
OLTS	3"	SA-193 B	37 BOLT <= 2	1.34	
IEX. NUTS					
				[42.27]	128
	9 1/16"	SA-312 T	P304 WLD &	4.54	



Internal and External Appurtenances

AMPreVA supports a wide range of appurtenance features and configurations

- Internal components including tray rings, baffles, vortex breakers, and other features.
- External components including lugs, clips, and vacuum rings.
- Manways attached to shells and heads with optional davit arms, hinges, and handles.
- Couplings, nozzles self-reinforced with flanges, elbows, reinforcement pads, and other attachments and configurations.
- Access openings in supporting shells such as skirts.

Layout Fabrication Drawings and Reports

The flat patterns of shell cylinders and transitions with opening cutouts, weld seams, plate dimensions, and other fabrication details are provided. Fabrication of segmented heads including generation of flat patterns and welding details are supported.

The templates for manual cutout of openings in shells and heads, nozzle end cuts, and reinforcement pad flat patterns are supported. Output for NC machines is also supported.

The generation of shell weld map details and quality control tracking tables are supported.

Detailed assembly and fabrication drawings for shell components, appurtenances, ladders, platforms, and any other attachments are supported.

3D geometry, drawings, bill of material, weights, and cost data can be edited within **AMPreVA** or exported.



Pressure Vessel Rapid Configuration and Detailing

From configuration and design to the creation of 3D geometry, detailed bills of material, purchase lists, cost calculations, and to-scale fabrication and layout drawings in only two hours.

Design changes can be made to modify, add, or delete features and within minutes the 3D geometry, drawings, bill of material, shell rollout plate cut-patterns, and cost reports are automatically updated.

With an easy-to-use custom graphical interface, **AMPreVA** can be mastered after two days of training.



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AMPreVA

AMPreVA is developed by **TechnoSoft**, a leading company in Knowledge-Based Engineering. **TechnoSoft** has successfully deployed engineering software applications in various industries including aerospace, automotive, and capital equipment.

AMETank is used for design and detailing of tanks per API 650, API 620, AWWA, and EN14015 standards. For more information visit **www.AMEtank.com**

AMInTank is used for inspection, rating, and repair planning of tanks per API 653. For more information visit **www.AMInTank.technosoft.com**

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