

# PV Elite®

**Product:** PV Elite (PVE)

**Version:** 2018 (20.00.00.0000)

**Date:** 27 November 2017

**Description:** Intergraph PV Elite analyzes and design pressure vessels and heat exchangers in accordance with U.S. National and International codes and standards, such as ASME, PD 5500, and EN 13445.

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## System Requirements

**Important:** Beginning with Windows 10, Microsoft will enforce the Internet Host Table Specification RFC 952 which mandates that component hostname labels can contain only alphanumeric characters. Hostnames using underscores ('\_') are not allowed. Refer to Microsoft KB 101785. Intergraph PV Elite is compatible with Windows desktop operating systems listed below.

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**Note:** The operating system compatibility details that follow refer to the latest released version of this software. Previous versions of the software might not work with newer operating systems.

| Operating System  | Compatibility Information  |
|---|--|
| Windows 7/8/8.1* Professional (32 & 64 bit)<br>Windows 7/8/8.1* Ultimate (32 & 64 bit)<br>Windows 7/8/8.1/10* Enterprise (32 & 64 bit)<br>Windows 10 Pro (32 & 64 bit)<br>Windows Server (all versions) | PV Elite Development tests these operating systems. PV Elite does not support Windows 7/8/8.1/10 Starter, Home Basic, and Home Premium. The software does not support Windows Vista Starter, Home Basic, Home Premium, Enterprise, Business, and Ultimate.<br><br>*Windows 8/8.1 – Enable .Net 3.5 prior to installing PV Elite.<br><br>Only tested by Intergraph for the installation of network licensing systems (NetHASP License Manager). |



# Version Compatibility

For up-to-date information on the software compatibility of this product in a standalone or integrated environment, please refer to the Compatibility Matrix on the Hexagon PPM Support Web site at <https://smartsupport.intergraph.com/>.

Log on and perform the following steps:

1. Click the **View Downloads** tab.
2. Click the **Product Compatibility** link under **Useful Links** on the right side.
3. On the **PPM Compatibility Matrix - Product Report** page, from the Select Product list, select PV Elite.
4. From the **Version** list, select the version of PV Elite.

# Special Instructions

PV Elite 2018 Version 20.00.00.0000 is a Windows (7/8/8.1/10)-based program. PV Elite may work under Windows Vista, although this platform has not been tested.

## Important:

If you are moving to Version 2018 from a version of PV Elite prior to Version 2008, your existing ESL may require a Firmware update to permit Version 2018 to run. You can find instructions on the program DVD in the Firmware.pdf document.

This version of PV Elite should be started by invoking the program, pve.exe.

For more information on installing PV Elite, refer to the PV Elite Quick Start, located on the program DVD.

# Documentation

## General

Use the Help menu to access the Help files and Printable Guides for this product. For the latest support information for this product, connect to <https://hexagonppm.com/ppm-support>. Also, you can submit any documentation comments or suggestions you might have on the Hexagon PPM support site.

Printed documentation is not available for separate purchase.

## PDF Files

The documentation is provided as .pdf files. You can use any PDF viewer to view the files.

# Training

To register for training on Hexagon PPM products, call Training Registration at (800) 766-7701 in the U.S. Outside the U.S., call (256) 730-5400 or contact your local Hexagon PPM office.

For current information on training, connect to <http://www.intergraph.com/ppm/training/>.



# Customer Support

For the latest Support Services information for this product, including solutions to known software issues, connect to <https://hexagonppm.com/ppm-support>.

To open service requests outside the U.S., please contact your local Hexagon PPM office.

## New Features in this Version

### **Code Updates**

- Updated PV Elite to include the ASME Section VIII 2017 Edition Code. (RI-TX-19730)
- Updated PV Elite to include the latest Material Database per ASME VIII 2017 Edition. (RI-TX-21410)
- Updated to support NBC 2015 wind & seismic code. (RI-TX-19849)
- Updated PV Elite to display and analyze Tapered Saddles. (RI-TX-10941)
- Updated to support KBC 2016 wind & seismic code. (RI-TX-20515)
- Updated to support ASCE 7 2016 wind & seismic code. (RI-TX-21076)
- Updated to support Kettle Type Heat Exchangers analysis. (RI-TX-1046)
- Updated to support Indian 2015 seismic code. (CR-TX-20290)
- Updated to support ASME STS-1 2016 code. (CR-TX-22989)
- Updated PV Elite to add Lifting Lugs on heads in the 3D View tab. The software has been updated to have lugs appear on a top head element in the model. (RI-TX-4755)
- Updated PV Elite to perform Design of Penetrations through Jackets as per Appendix 9-6. The software has been updated to apply the rules per Appendix 9-6 for nozzles that penetrate only through the jacket element, thus setting the required thickness calculation to use the internal pressure set as zero. (CR-TX-23019)
- Updated PV Elite to the latest ASME VIII-2, paragraph 4.7.5. Floating Head design calculation with the alternative analysis for type D floating heads in Part 4 based on Soehrn's paper, so that it matches the equations shown correctly in PTB-3 2013. (CR-TX-23249)

### **Configuration**

- Updated PV Elite to let the software to determine automatically which graphics video drivers to use based upon my system or store the video driver information in a version-specific product registry at a program (PV Elite) version-specific level. The software has been updated to intelligently select video drivers/store in version-specific product registry. (CR-TX-18115)
- Updated PV Elite to include the ability to switch between different ASME VIII Code Editions. The software has been updated to allow users to select the ASME code Edition through the Configuration dialog. (CR-TX-24298)
- Updated PV Elite to add user configurable options for MDMT handling of -155F for stress ratios of 0.35 and less. and UCS-68(c) MDMT interpretation. The software has been updated to allow users to use the MDMT options in the Configuration Dialog. (CR-TX-24301)



### ***Input Processor & Analysis***

- Updated PV Elite to determine Retirement Thicknesses based on iterating corrosion allowances, so that days of calculations can be saved. The software will determine the thickness of these components to determine their retirement limit. (RI-TX-19373)
- Updated PV Elite to generate a pressure temperature curve known as an MSOT (Maximum Safe Operating Temperature) curve and display in Output Processor application so that the analysis can process a temperature and pressure plot to check for unsafe conditions. (CR-TX-24297)
- Updated PV Elite to show element/detail information as a Tooltip in the 3D model. Tooltip should only show up by keeping the <CTRL> keyboard button pressed while the mouse cursor is in the 3D View tab. (RI-TX-17713)
- Updated PV Elite to allow flange loads to be specified at the end of the nozzle projection/flange. The Nozzle Calculation report reflects these loads in the report. (CR-TX-23355)
- Updated PV Elite to add Circumferential Bolt Spacing quick result to the Basing Dialog. This implementation will show the calculation result in status bar in the Basing Dialog. (CR-TX-23356)
- Updated PV Elite to add a Warning in the Basing Dialog & Flange Dialog if the ASME Material Class selection matches with the Bolt Size selected. The Warning will show up in the basing & flange output report if the material selected doesn't match the bolt size. (CR-TX-23411)
- Updated PV Elite to model a Saddle with only one center rib, so that it satisfies a small vessel design. The software has been updated to model one rib in the Saddle 3D model and also reflect the saddle analysis with one rib in the output Horizontal Vessel Analysis report. (CR-TX-23463)
- Updated PV Elite to support more than 4 Saddles in the input file analysis. This implementation will also insure horizontal models with more than 4 supports don't analyze while using Response Spectrum seismic Method. (CR-TX-15493)
- Updated PV Elite to include the Mexican Steel Profiles Library into the Structural database. The software has been updated to include the Mexican Steel properties option in the Leg Dialog drop down list. (CR-TX-9533)
- Updated PV Elite to consider nozzle loading on nozzle flanges (std) in the Nozzle Flange MAWP analysis report. The software has been updated with an option to include Flange Nozzle Loading for each individual Nozzle. (CR-TX-21592)
- Updated PV Elite to retain a new property value without hitting Enter key when you run the analysis. The software has been updated to retain the input provided in the design data tab after pressing the Run the Analysis button. (CR-TX-10164)
- Updated PV Elite to include a selection pull down evaluation method for ANSI flanges . The software has been updated to allow the selection of several methods to de-rate the flange MAWP based on external loads in the Load Cases grid tab and display the analysis calculation in the Nozzle Flange MAWP report. (CR-TX-22962)

### ***Output Processor & Reports***

- Updated PV Elite to perform percent elongation calculations for non-ferrous materials. The software has been updated to perform % Elongation per Table UG-79-1 calculations on the Internal Pressure Calculations report. (CR-TX-19410)
- Updated PV Elite to perform the calculation for the Stress Computations at the Edge of the Reinforcing Pad when WRC 297 is the local stress calculation method used. The software



has been updated to reflect the calculation results when using WRC 297 in the Nozzle Calculation report. (CR-TX-23358)

- Updated PV Elite to display in the Input Echo output report, if the selection of 'weld is pre-heated' information is selected. The software has been updated to reflect in the output report if the information about 'weld is pre-heated' is checked. (CR-TX-10064)
- Updated PV Elite to add images in the output reports, so that it adds value to the software output reports and displays detail element plots to add information to the calculation reports. The software has been updated to show the output reports that need a detailed element image that can be customized and the images are stored in the System folder directory. (CR-TX-19740)
- Updated PV Elite to omit the bolt area calculations for basering in the Basing Calculations output report, when we select 'Neutral axis shift method' for 'Analyse' basering design option, since the method of calculation is different when compared to "Simplified" method. The software has been updated since the bolt area calculations should be removed when we select 'Neutral axis shifted' method for 'Analyse' design option. (CR-TX-19606)
- Updated PV Elite to account for Lining/Cladding Weight in the Fabricated Weight only if the material density is greater than 0.1 lb/in<sup>3</sup>, the material will be treated as cladding type material. The output Element and Detail Weights report will reflect the additional fabricated weight of lining/cladding weight. (CR-TX-23357)
- Updated PV Elite to add Nozzle Flange MDMT calculations inline within the Nozzle Calculation report. The software has been updated to have the Nozzle flange MDMT calculations inline within the nozzle report. (CR-TX-10108)
- ASME VIII-2 Class 1 Vessel Analysis is now supported

