

New Version 9.7

Author: <>

Version 9.7 is a major upgrade and includes significant improvements and additions especially to the ASME VIII Div.1 and EN13445 modules.

Version 9.7 - General

Version 9.7 is a major upgrade and includes significant improvements and additions especially to the ASME VIII Div.1 and EN13445 modules. This version is also in compliance with EN13445 up to and including Issue 21, and PD5500:2006 edition.

Some general enhancements of the new version includes:

- A complete new 2D drawing module integrated into the main program. No longer need for a separate installation of the 2D drawing system.
- Improved report format, items not OK is now highlighted in red.
- Improved data input window, now includes a separate tab for each window.
- Bill of material more detailed.
- Now calculates the required minimum bolting torque also at test condition, not only at operating/bolting up conditions.
- Now calculates the maximum test pressure for all components including flanges and bolts, tubesheets and tubebundles. For tubesheets and tubebundles the maximum allowed and required minimum test pressure is calculated for both tubeside and shellside conditions.

Version 9.7 – ASME VIII Div.1

This new version includes a number of improvements and additions for the ASME module as briefly described below:

- Added a new module for calculation of MDMT (Minimum Design Metal Temperature) to UCS-66. The MDMT is now calculated for each individual component and assembly. All relevant materials has been given a curve designation A, B ,C or D in Fig. UCS-66, Impact Test Exemption Curves. Furthermore the reduction in minimum design metal temperature without impact testing is determined from figure UCS-66.1.

- Added a new option for design of PED vessels with ASME VIII. Test pressure and safety factor for allowable material strength is taken from PED Annex Z.

- Added lifting lug design.

- Added design of stiffener rings located in conical shells.

- The cone-cylinder junction is now automatically recalculated according to requirements in Appendix 1-5 and 1-8 for each load case, if applicable.

- Cone-cylinder junctions can now easily add reinforcement area as separate ring reinforcement.

- Performs a complete check of minimum component thickness according to requirements in section UG-16, depending on service.

- Nozzle design, module significantly improved. Improved input sections and now also includes over 20 different predefined attachment welds according to requirements in chapter UW-16.

- Openings without nozzles can now easily be added to a welded or bolted flat end.

- Added a new option for nozzle load calculations, now the user can simultaneously calculate any load combination in any number of load cases.

- The maximum unsupported length is now calculated for cylindrical shells subjected to vacuum or external pressure based on the actual shell thickness.

- Added 3 new sample files for shell and tube heat exchangers.

With the above addition of floating head design to Appendix 1-6, the ASME module of the VVD software now accommodates design of all types of configuration of shell and tube heat exchangers.

Version 9.7 - EN13445

Version 9.7 is in compliance with EN13445 up to and including Issue 21. The standard hydrostatic pressure is now calculated according to the new methods b and c in EN13445-5 section 10.2.3.3 Standard Hydrostatic Pressure of Issue 14.

This new version includes a number of improvements and additions as briefly described below

- Added EN13445-2 Annex B, Requirements for prevention of brittle fracture. The required impact test temperature is now calculated for each component and assembly according to requirements in section B.2.3 and B.4.

Now isolated and groups of openings/nozzles located in the knuckle region of torispherical and ellipsoidal ends can easily be calculated and included in the model.

-

- Added design of both light and heavy stiffeners located on conical shells as given in issue 16 of the standard.

- Increased flexibility on design of nozzles as included in issue 17 of the standard. No longer restrictions on nozzle to shell thickness ratio if the nozzle is not a critical area with regards to fatigue and is operating outside creep range, reinforcement pad on both inside and outside allowed,

- Now calculates the maximum test pressure for all components including flanges, bolts, **groups of nozzles**, tubesheets and tubebundles as required by the new rules in issue 14.

- Lifting lug design now includes design of the complete lug including calculation of min. required weld areas, contact bearing stresses and tear out stresses (formulas taken from Det Norske Veritas Cert.Notes 2.7-1 Annex E).

- Bracket support design now includes design of the complete support including min. thickness of base plate and gusset plate, weld design and anchor bolts.

- Openings without nozzles can now easily be added to a welded or bolted flat end.

- Added a new option for nozzle load calculations, now the user can simultaneously calculate any load combination in any number of load cases. Using the new option for load cases, instead of load ranges, may reduce the utilization.

- Material database updated to latest version of EN10217-7 Stainless Steel Tubes.

Version 9.7 – PD5500

Version 9.7 is in compliance with PD5500:2006 edition.

- Added lifting lug design

Version 9.7 – 2D/3D Modules

Added drawing of:

- Lifting lugs
- Several type of bracket supports
- Baffle plates of shell and tube heat exchangers