COURSES IN VISUAL VESSEL DESIGN PROGRAM USAGE

2 DAYS COURSE - DESCRIPTION

WITH SPECIAL FOCUS ON THE EUROPEAN STANDARD EN13445

This course is intended for both new VVD users and experienced VVD users that would like to learn to design vessels to the European Standard EN13445. The course provides a practical design approach and basic theoretical background in the design of varies pressure vessel components. The course covers design of the most common pressure vessel components and calculations, including material design data, cylindrical & conical shells and ends under internal and external pressure, stiffener rings, nozzles, nozzle loads, flanges, supports, non-pressure loads, tubesheets and fatigue analysis. The focus is primarily on the European Standard EN13445, and this standard will be used in the varies component design. The course has a limited number of participants and all participants are given a designated PC to enable a hand-on learning experience.

- Learn about the advantages of the alternative flange design method to EN1591 and EN13445 Annex G, it gives a more reliable and more economic design and even more important a leakfree joint.
- Learn about the advantages of the alternative tubesheet design method to EN13445 Annex J, it gives a more economic design, especially for fixed tubesheet heat exchangers.
- Learn about the Alternative Route that allows the safety factor on tensile stress to be reduced from 2.4 to 1.875.
- Learn to design vessel and supports (vessels on with external loadings including wind, seismic, accelerations and blast loads.
- Learn how to deal with fatigue assessment of a vessel
- Learn about the new Automated Drawing Production module, easily generate GA drawings as well as detailed drawings, and export 3D model to STEP file format.
- Examples demonstrating new features, including the automated drawing production, nozzles located in ends outside 0.8D limit, vessel supports, lifting lugs/lifting trunions (horizontal to vertical lift/tailing lugs welded to skirt base ring), attachment lugs etc.

COURSE PROGRAM

Day 1

0930 – 0945	Introduction
0945 – 1200	Program overview and functionality, modes of operations, process cards, VVD workplace, global coordinate system, database information et Material data and safety factors, creep properties, test groups & extent of NDT, v coefficients, test pressures, design methods, cylindrical & conical shells and ends internal and external pressure, stiffening rings, vessels outside tolerance limits.

1200 – 1230 Lunch break

1230 – 1600 Design of isolated nozzles, groups of nozzles, nozzle loads, lifting lugs, lifting trunions and support lugs.

Day 2

0900 – 1200 Comparison between design methods, allowable stress and other specific requirements for the standards EN13445, PD5500, AD2000 and ASME VIII.

Recent development in the VVD software and EN13445 standard.

Flanges to EN13445 Section 11(Taylor Forge) and Alternative Method for flange design according to EN13445 Annex G and EN1591.

Design of saddle support, skirt support, leg support and bracket supports, non-pressure loads, tall tower analysis including external loads (wind, blast, seismic, wind induced vibrations etc.)

1200 – 1230 Lunch break

1230 – 1515 Fatigue analysis to EN13445 section 17.

Design of tubesheets to EN13445 section 13 and Annex J, tubebundle, tubelayout and expansion bellows for shell & tube heat exchangers.

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