### ENGINEERING TRAINER

Designing according the EN13445 code

## **Online Course**



Self-paced
9 modules
7.5 hours

DYNAFLOW

RESEARCH GROUP.

- ♀ English
- C 1-yr access
  - SPC118









### **Course Objective**

"To provide static equipment engineers with a solid understanding of the design basis of the EN13445 design code."

### Program

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Module 1	Introduction to EN13445	1 hr	01 min
Module 2	Stress Definitions and Allowable		37 min
Module 3	Shells under Internal Pressure		58 min
Module 4	Shells under External Pressure		36 min
Module 5	Vessel Openings & Nozzles		40 min
Module 6	Designing Flat Ends and Flanges	1 hr	04 min
Module 7	Design by analysis	1 hr	08 min
Module 8	Fatigue assessment methods		59 min
Module 9	Heat exchangers & miscelaneous		49 min

### Results



Understand the failure mechanisms considered in the code

Are able to use the design rules for many components, amongst others cylindrical shells under internal & external pressure, openings and nozzles, flat ends and flange connections, heat exchanger tube sheets, rectangular shells and saddles and skirts

Understand the role of Design by analysis (Finite Element Analysis) for EN13445 design

Can identify the limitations of the design rules

Know the important differences with the ASME BPVC VIII-1stress analysis

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## ENGINEERING TRAINER

# Designing according the EN13445 code

# **Online Course**

### **Provided by**



Daniel van Baalen, MSc Project Engineer, Dynaflow Research group

Mechanical, Piping, FEA, Flow

DYNAFLOW RESEARCH GROUP.

Dynaflow Research Group specializes in the advanced end of the engineering spectrum. Their work often requires a multi-disciplinary approach: encompassing the static and dynamic analysis of both fluids and gases, and mechanical components.

They are at their best when creative thinking and a practical approach are required to tackle a problem.

### **Course Summary**

The EN13445 design code is the harmonized design code for unfired pressure vessel design under the Pressure Equipment Directive (2014/68/EU). Often the rules are applied using automated software packages and the engineer can lose the overview of the calculation being performed.

This course explains the fundamental equations and principles in these design rules. For example: What is the area replacement rule? How is the Taylor and Forge method applied? What inner-stiffener distance is required to prevent collapse under vacuum, and why? What is the difference between primary and secondary stresses, and how is this evaluated in the code?

Next to explaining the rules and how to apply them, the instructor will also challenge the participants on why a rule is formulated in a particular way and show important differences with ASME BPVC Section VIII Division 1 code.

### Who should attend this course

- Those required to design pressure vessels as per the EN13445 and that want a solid overview and understanding of the design methods used in the code
- Engineers that already have experience with the EN13445 and that want to improve their understanding of the backgrounds for the different rules and methods applied in the code
- Technicians involved in the production of EN13445 unfired pressure vessels that want a solid understanding of the design basis of their vessels

### Prerequisities

• None

Level Intermediate

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