



FACT SHEET (ONLINE)

Piping Systems in Industrial Plants: II



Piping Systems in Industrial Plants: Pipe wall thickness due to Internal Pressure, External Pressure verification, design of Non-standard flanges, Insulation for Piping Systems.

Who Should Attend?

This course is intended for graduates (or soon to be), designers, freelancers, technicians and engineers involved in: calculation, design, selection, manufacturing, safety, quality and maintenance of systems and equipment in industrial processes.

Previous knowledge of this subject is not required to attend to the course.

Training Objectives

The main objective of this course is to transfer to participants the theoretical and practical skills required in projects, obtained from experience and sound engineering practices.

What to Expect?

Learn to design, calculate and select the commercial pipe wall thickness under internal pressure.

Know how to verify the pipe wall thickness under external pressure and design stiffening rings.

Learn to design Non-standard flanges (size, pressure and/or temperature out of commercial range).

Get familiar with the insulation selection process for cold and hot piping systems.

Methodology

Available in English and Spanish

Self-guided Hands-On

40 hs Dedication, 60 days Open

Self-paced course

Available 24/7

“Learn by doing” concept

Non-scheduled sessions

Available on [iPhone](#) / [Android](#)

Resources Available

Study Notes

Introductory Videos

Multiple Choice Assignments

Real Data Sheets

Calculation Sheets Included

Extra Material

Instructor Support

Virtual Campus: Schoology



Contents

Pipe calculation under internal pressure

General considerations

Design Loads

Allowable stress

Thickness calculation: ASME B31

Commercial thickness selection

Piping systems under external pressure

External pressure case scenarios

Design conditions

ASME Section VIII, Div. 1 equations

Elements acting as support lines

Design of stiffening rings

Design of non-standard flanges

Design criteria

Loads definition

Types of flanges

Bolts and gaskets

Insulation for piping systems

Insulation thickness calculation

Selection criteria

Heat and cold conservation

Insulation material protection

Complementary Parts

Part I: Optimal diameter, Pressure loss, Selection of components, Plot Plan and Pipe racks.

Part III: Stress analysis fundamentals, Selection of Supports, design of Buried Piping.

All three parts together cover the **most relevant of Piping Systems design and calculation.**

Case Studies

Module 1: vocabulary, terminology, materials and piping insulation selection.

Module 2: pipe thickness calculation under internal pressure, selection of commercial thickness.

Module 3: verification of pipe wall thickness under external pressure and design of stiffening rings.

Module 4: design of Non-standard flanges (size, pressure and/or temperature out of commercial range).

Instructor

Javier Tirenti. Senior Mechanical Engineer and Master in Business Administration (MBA). **More than 20 years of experience in design, calculation and fabrication of pressure vessels, heat exchangers, storage tanks, piping systems and structures in general.**

Duties of the above mentioned positions cover the entire cycle of an equipment, **from the very conception, drawings, design and calculation, technical specifications, technical requisitions, vendor drawings, to the manufacturing phase and installation assistance.** Among the developed projects, clients such as SHELL, EXXON, REPSOL, CHEVRON, GALP, CEPESA, TUPRAS and SAUDI ARAMCO can be found.

Vast experience providing specific training sessions in both classroom and online approaches. More than 75 training courses carried out in different institutions and in-company, courses oriented to graduates, designers, engineers and experienced professionals.