

# FACT SHEET (LIVE COURSE)

## ASME PCC 1 | Guidelines for Bolted Flange Joint Assembly



**ASME PCC-1: Introduction, bolted flange joint alignment, Installation of bolts, Inspection and documentation.**

### 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 to guarantee and adequate design and installation of flanged joints. This knowledge has been obtained from experience and sound engineering practices.

**At the end of the course, participants will have a clear vision of the requirements of these regulations.**

### Methodology

Instructor-led training course in adult learning format with discussions, individual exercises, and simplified case studies, providing practical knowledge to implement in the field. This training course is based on the experience gathered through the development of several international projects

### Duration

The duration of this training course is **16 hours**, divided into several sessions and case studies to facilitate the learning process.

### What to expect?

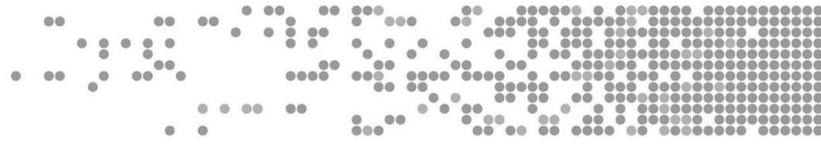
Get familiar with the vocabulary, terminology, and fundamental concepts of flanged joints.

Learn the organization of the code, scope, and fundamental sections.

Benefit from lessons learned and best practices from different international projects.

At the end of this training participants will be able to define the main requirements for flanged joints:

- Flanged joints as per ASME PCC-1
- Verification of the main parameter to guarantee an adequate seating of bolted flanges.
- Tightening of bolts
- Tightening Sequence
- Torque calculation
- Pressure tests



## Contents

### Introduction

#### ASME PCC-1 Scope

#### Introduction

Terminology and vocabulary

Introduction to flanged joints

Types of flanges, bolts and gaskets

Selecting the bolt assembly torque

Bolt torque: direct approach

Parameters for selecting the bolt torque: assembly approach

Procedure for determining the adequate bolt torque: assembly approach

Use of tables through case studies

### Flanged joints as per ASME PCC1

#### Guidelines for bolted flanged joint assembly as per ASME PCC-1

Training and qualification of bolted joint assembly personnel

Quality assurance of qualification organizations

Surface finish of joints

Flatness and defects in joint surfaces

Cleaning and verification of contact surfaces in flanged joints

Alignment of flanged joints

Gasket Installation

Lubrication of working surfaces

### Inspection and documentation

#### Pressure and leak test

Assembly records

Joint assembly reports

Dismantling of flanged joints

Load control during disassembly

Comments and guidelines on bolt reuse

### Installation of bolts

#### Bolt installation

Bolt numbering

Bolt tightening

Tightening method and load control technique

Torque vs Tension, what is the difference?

Tightening Sequence

Measurement of gaps

Calculation of target torque

### Case studies in the classroom:

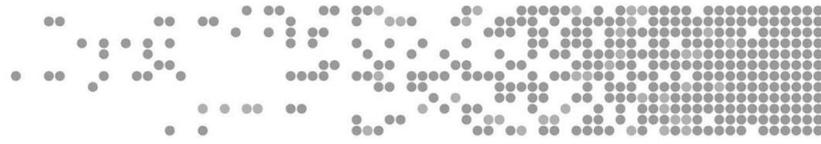
Assimilation Questions

Determination of torque in bolts:

Simple approach

Assembly approach

Example of real case studies



## Instructor

Senior Mechanical Engineer and master's 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 methodologies. More than 75 training courses conducted** in different institutions and in-company, courses oriented to graduates, designers, engineers and experienced professionals.

## Tailored Training

The most effective training is one that satisfies the needs of each company's business focus and deliverables. **We adapt our training programs to each specific requirement, offering bespoke solutions for each need.** The result, 100% tailored programs, developed to maximize the time investment and deliver tangible and intangible returns to the work teams.

After an assessment phase, a tailored training plan is de-signed jointly with the client. This plan is specifically tailored to meet the client's needs, focusing on effectively enhancing the capabilities of the work team. **We provide practical, dynamic and hands-on training,** making available the best instructors in each subject.

## Arveng Training

**Arveng Training has developed effective and practical courses for the needs of today's industrial challenges by delivering specific and high-quality engineering training courses utilizing all three approaches: classroom, on-line and tailored training.** We are proud to have imparted more than 100 classroom courses, 200 online courses and over 15 in-company sessions. Our training activities has benefited over 1,500 professionals. Our greatest pride is in the letters of recommendation we receive from so many of our customers in this area.

**We consider the time of our students as the most valuable.** For this reason, all our courses have been designed with the main objective of quickly the professional skills of the participants, through our expert instructors in different disciplines. **We stimulate creativity, innovation and initiative to make the participants inquisitive to bring good engineering practices and lessons learned to the field that benefits their employers in the long term.**

## Our Company

**Arveng Training & Engineering SL is a leading company providing Training and Engineering services based in Madrid, Spain.** Our mission and vision are to be a leading training and engineering services company. We are a team of highly motivated, talented high qualified professionals with more than 20 years of experience. Our main goal is to provide our clients, the best training and engineering services and to exceed their expectations in all their spheres of industrial activity, through our renowned services which are based on efficient, innovative, cost-effective and transparent principles.

Established in July 2010, mainly oriented to the industrial sector, from the very beginning Arveng has always worked with closeness, responsibility and commitment in the different areas of activity.