



2KG TRAINING

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ASME Code, Section VIII, Division 1: DESIGN AND FABRICATION OF PRESSURE VESSELS

Presenter: Dr. Ing. Daniel Baloš

ABOUT THE PRESENTER: DR. ING. DANIEL BALOŠ



Dr. Ing. Daniel Baloš is a Senior Consultant with over 28 years of expertise in Asset Integrity, Risk-Based Inspection (RBI), Fitness for Service, and Damage Mechanisms—especially within the oil, gas, and refining sectors. He has a strong technical focus on the practical application of ASME VIII-1 and ASME B31.3 standards, which underpin his work in ensuring the safety and reliability of high-pressure equipment and process piping systems.

His academic background includes an MSc in Mechanical Engineering, with a specialization in applicative IT and industrial management, and a PhD focused on applying data mining techniques to model material behavior in high-temperature components. Throughout his career, Dr. Baloš has led and contributed to more than 20 EU-funded projects, as well as numerous national initiatives in material research and project management.

In his professional journey, he has developed a comprehensive understanding of materials, degradation mechanisms, and inspection methods—skills that are critical in the oil and gas refining industry. His leadership in RBI and asset integrity projects is evidenced by successful implementations in key regions, including projects in Kuwait, Qatar, and across Europe. Additionally, he has played a pivotal role in establishing RBI standards and procedures, contributing to international standardization efforts and the development of specialized tools for RBI assessment in refining equipment.

Dr. Baloš has also been a dedicated educator and mentor, delivering design and Asset Integrity courses and training programs since 2005 across Germany, the Netherlands, Serbia, Romania, China, Vietnam, Myanmar, Egypt, Turkey, and Malaysia. He continues to develop innovative training materials and new courses designed to advance professional expertise in asset integrity and risk management, with a focus on the rigorous standards that drive the oil and gas refining industry.

Number of days: 3

CPD Points: 3

Live Virtual Classroom

2KG Training Live Virtual Courses offer participants the same instructors, training systems, course materials, personal support, and face-to-face engagement with instructors and other participants that they would expect to find in a conventional classroom.

The ASME VIII Div 1 Pressure Vessels Live Virtual Course brings participants together in a virtual classroom, where they receive training from an expert via a live video link. Participants are interconnected via audio and video, enabling them to interact both with the instructor and with their classmates. Learners can speak to their instructor at any time to ask questions, request assistance, and instructors can provide hands-on support.

Description

Based on the rules for pressure vessel design and construction, this course is a comprehensive introduction to the requirements of Section VIII, Division 1 including background, organization, design, materials, fabrication, inspection, testing and documentation of pressure vessels operating at either internal or external pressures exceeding 15 psig.

Careful application of this Section will help users to comply with applicable regulations within their jurisdictions, while achieving the operational, cost and safety benefits to be gained from the many industry best-practices detailed within these volumes.

Upon completion of this course you will be able to:

- Understand the background of the Code rules
- Apply the Code rules to more common design and fabrication situations
- Perform calculations for some of the loadings and situations not addressed by the Code
- Use Appendix 46, which allows the use of the Design by rule methods of Part 4 of the ASME Code Section VIII Division 2
- Prepare design specifications, design reports, Data Reports, and other documentation

Who Should Attend

Individuals involved with design, analysis, fabrication, purchasing, repair, and inspection of pressure vessels, as well as supervisory and regulatory personnel. Some degree of technical background will be helpful, but such individuals are not required to have an Engineering degree or previous work experience in the subject matter. Both beginners and experienced personnel involved with pressure vessels will benefit from this course.

COURSE OUTLINE

Day 1: Introduction and Fundamentals of ASME VIII-1 Design

1. Welcome and Course Overview

- Introduction to instructor and participants
- Objectives and structure of the training program
- Overview of ASME VIII-1 standards

2. Introduction to ASME Boiler and Pressure Vessel code

- Purpose, History, and Evolution
- Scope and Applicability of Section VIII Division 1

3. Certificates of Authorization

- Qualification Requirements
- Roles, Responsibility, and Authorization Process

4. Structure and Organization of ASME Section VIII, Division 1

- Detailed breakdown of the Code
- Navigation Techniques and Key Definitions

5. Fundamental Principles for Pressure Vessel Construction

- Types of Joints and Welding Categories
- Static Head Considerations in Design
- Basic Calculations and Reference Charts
- Radiographic Testing (RT) Requirements and RT Factors

6. Case Study: Practical Application of ASME VIII-1

Day 2 : ASME VIII-1 Material and Fabrication Standards

7. Material Requirements

- Material Selection and Specifications
- Identification, Traceability, and Testing Standards

8. Fabrication Processes

- Fabrication Sequence and Traceability
- Forming, Welding, and Inspection Protocols

9. Heat Treatment Requirements

- Heat Treatment Methods
- ASME Code Requirements

10. Advanced Topics in Material and Fabrication

- Updates and Integration

11. Case Study: Material Selection and Fabrication

Day 3 : Testing, Quality Assurance, and API Inspection Codes

12. Non-Destructive Testing (NDT)

- Techniques: RT, UT, MT, PT
- Personnel Qualifications and Procedures

13. Pressure Testing

- Safety Procedures for Hydrostatic and Pneumatic Testing
- Minimum Design Metal Temperature (MDMT) Considerations

14. Documentation & Stamping

- Manufacturer Data Reports
- ASME Code Compliance Documentation

15. API Inspection Codes Overview

- Introduction to API 510: Pressure Vessel Inspection
- Inspection Planning, Intervals, and Methods

16. Case Study: Turnaround planning

INSPECTION, REPAIRS, AND ALTERATIONS OF PRESSURE VESSELS

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In his professional journey, he has developed a comprehensive understanding of materials, degradation mechanisms, and inspection methods—skills that are critical in the oil and gas refining industry. His leadership in RBI and asset integrity projects is evidenced by successful implementations in key regions, including projects in Kuwait, Qatar, and across Europe. Additionally, he has played a pivotal role in establishing RBI standards and procedures, contributing to international standardization efforts and the development of specialized tools for RBI assessment in refining equipment.

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Number of days: 2

CPD Points: 2

Live Virtual Classroom

2KG Training Live Virtual Courses offer participants the same instructors, training systems, course materials, personal support, and face-to-face engagement with instructors and other participants that they would expect to find in a conventional classroom.

The Inspection & Repairs Live Virtual Course brings participants together in a virtual classroom, where they receive training from an expert via a live video link. Participants are interconnected via audio and video, enabling them to interact both with the instructor and with their classmates. Learners can speak to their instructor at any time to ask questions, request assistance, and instructors can provide hands-on support.

This inspection and repair course is run alongside the ASME Section VIII Div 1 course. Delegates may attend either or both courses.

This course is a comprehensive introduction to the requirements of various codes and standards, regarding inspection, repairs and alterations of pressure equipment, and in particular pressure vessels. The requirements of the National Board Inspection Code and the API-510 will be covered in detail. An introduction to API-579, Fitness for Service will also be included. Simple flaw evaluation procedures will be evaluated. The activities of ASME's Post Construction Committees will be explained and documents published by these Committees will be discussed.

Who Should Attend

Individuals from users, manufacturers, repair organizations, inspection agencies and other organizations involved with maintenance and repair of pressure equipment. This course is intended for beginners, as well as experienced personnel wishing to update their knowledge.

COURSE OUTLINE

Day 4 : Fitness-For-Service (FFS) per ASME FFS-1

17. Introduction to ASME FFS-1

- FFS Concepts, Levels of Assessment
- Assessment Techniques and Acceptance Criteria

18. Damage Mechanisms and FFS Evaluation

- Corrosion, Erosion, Crack-Like Flaws and Brittle Fracture

19. Remaining Life Estimation

- Application of FFS Techniques for Life Extension

20. Advanced Applications of FFS

- High-Temperature & Fatigue Assessments

21. Case Study: Real-Life FFS Evaluations

Day 5 : Repairs and Alternations Per ASME PCC-2

22. Introduction to ASME PCC-2

- Scope, Applications, And Temporary vs. Permanent Repairs

23. Repair Methods & Procedures

- Weld Repairs, Mechanical Clamp Repairs, Composite Repairs

24. Practical Implementation of Repairs

- Selection of Appropriate Repair Techniques
- Regulatory & Code Compliance

25. Case Studies: PCC-2 Repair Applications

26. Course Summary, Q&A, and Final Assessment

- Comprehensive Review
- Final Q&A Session and Knowledge Check
- Participant Feedback and Certificate Distribution



Registration Form

How to register for the course:

1. Complete this registration form and fax it to Phindi Chauke: Tel: 011 325 0686 Fax: 011 325 0488 Email: phindi@2kg.co.za
2. Acknowledgement will be emailed to you.
3. Final confirmation and details will be faxed or emailed to you approximately 7 days before the commencement of the seminar.

Cancellation Policy:

By signing and returning the registration form, the authorizing signatory on behalf of the stated company is subject to the following terms and conditions.

- All cancellations must be received in writing
- Any cancellations received less than 7 working days before the date of the event, the full fee will be payable and the delegate can attend the next scheduled training course.
- In case of insufficient applications for the workshop 2KG reserves the right to cancel the seminar. Applicants will be informed and all fees will be refunded immediately.

Delegate information:

Title: _____ Surname: _____ Name: _____
 Full Company name: _____ Job Title: _____
 Postal Address (to which invoice must be sent): _____

 Code: _____ VAT number: _____
 Tel: () _____ fax: () _____
 Cell: _____ Email: _____

Contact/ Accounts information:

Title: _____ Surname: _____ Name: _____
 Tel: () _____ fax: () _____
 Cell: _____ Email: _____

Please tick the course that you would like to attend:

Conventional Classroom course

<input type="checkbox"/> 13 – 15 October 2025 (3 Days) Secunda R16 000.00 (excl VAT)	<input type="checkbox"/> 13 – 17 October 2025 (2 Days) Secunda R10 750.00 (excl VAT)	<input type="checkbox"/> 13 – 17 October 2025 (attend both, 5 days) Secunda R26 750.00 (excl VAT)
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Live Virtual Classroom course

<input type="checkbox"/> Date to be advised (3 Days) Live Virtual Classroom R12 800.00 (excl VAT)	<input type="checkbox"/> Date to be advised (2 Days) Live Virtual Classroom R8 600.00 (excl VAT)	<input type="checkbox"/> Date to be advised (attend both, 5 days) Live Virtual Classroom R21 400.00 (excl VAT)
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I have read and agreed to all the conditions of registration as stipulated in this brochure.

Signature _____ Date

For more info and to register contact Phindi Chauke on tel: 011 325 0686 or cell: 071 125 6188 and email: phindi@2kg.co.za or visit www.2kg.co.za