



INSPECTION, INTEGRITY AND CORROSION TRAINING

Pressure Vessel Design and Fabrication to ASME Section VIII

5 day course

Classroom, online or in-house

Course overview

A vessel's safety is mostly settled before it holds any fluid: in the wall chosen, the reinforcement around each opening and the scrutiny applied to every seam. This programme reads ASME Section VIII Division 1 as a designer and a fabrication reviewer use it. Delegates size shells and heads for internal pressure, check cylinders and cones for external pressure with stiffening rings, and design nozzle reinforcement by the area replacement rule. Joint categories and joint efficiencies are linked to the extent of radiography, followed by allowable stresses, impact test exemption curves and minimum design metal temperature. Fabrication tolerances, post weld heat treatment, the hydrostatic or pneumatic test and the manufacturer's data report come next. Division 2 design by analysis is compared at the close, so delegates can judge when its thinner walls justify the extra engineering.

What you will learn

- Calculate shell and head thickness for internal pressure under Division 1
- Design cylinders and cones for external pressure, including stiffening rings
- Size nozzle reinforcement using the area replacement method
- Select joint efficiencies from joint category and extent of radiography
- Determine minimum design metal temperature and impact test requirements
- Specify post weld heat treatment and fabrication tolerances
- Plan the hydrostatic or pneumatic pressure test
- Evaluate when Division 2 design by analysis offers an advantage

Who should attend

- Mechanical design engineers for pressure equipment
- Fabrication and quality engineers in vessel workshops
- Client engineers reviewing vendor vessel designs
- Project engineers procuring pressure vessels
- Third party reviewers of fabrication documentation

Course outline

- 01 Organisation of Section VIII and its divisions
- 02 Shells and heads under internal pressure
- 03 External pressure and stiffening rings
- 04 Openings and nozzle reinforcement
- 05 Joint categories, efficiencies and radiography
- 06 Materials, toughness and minimum design metal temperature
- 07 Fabrication tolerances and post weld heat treatment
- 08 Pressure testing and the manufacturer's data report
- 09 Division 2 design by analysis compared

Upcoming dates



Dates	Venue	Format	Fee per delegate
2 to 6 November 2026	Lagos, Nigeria	Classroom	USD 1,325
30 November to 4 December 2026	Online	Online	R8,500
7 to 11 December 2026	Harare, Zimbabwe	Classroom	USD 1,325

Fees and how to register

This 5 day course is **R8,500** per delegate online, **R19,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 1,325** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afriScience.co.za, or WhatsApp us on **+27 63 479 1136**.

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