

Advanced Pump & Valve Inspection, Testing and Compliance

(Including API 598 Valve Inspection & Pressure Testing Certification Focus)

OVERVIEW

The Advanced Pump & Valve Inspection, Testing and Compliance course is a comprehensive, industry-focused programme designed to equip engineers, inspectors, maintenance personnel, and quality assurance professionals with the advanced knowledge and practical skills required to inspect, test, and ensure compliance of pumps and industrial valves in accordance with international standards.

This course places strong emphasis on valve inspection and pressure testing requirements in line with API 598, the globally recognized standard for valve inspection and testing, while also integrating relevant requirements from American Petroleum Institute standards and associated codes commonly applied in the oil & gas, petrochemical, power generation, and process industries.

Participants will gain a deep understanding of pump and valve construction, materials of manufacture, common failure modes, integrity assessment methodologies, hydrostatic and pneumatic testing procedures, leakage acceptance criteria, and documentation requirements for compliance certification. The course bridges the gap between theoretical standards and real-world field implementation, ensuring participants can confidently interpret specifications, perform inspections, witness testing, and verify conformity with client and regulatory requirements.

Through practical case studies, inspection checklists, testing simulations, and compliance documentation exercises, delegates will develop the competence to:

- Conduct detailed visual, dimensional, and functional inspections
- Perform and witness hydrostatic shell tests and seat leakage tests
- Interpret and apply API 598 acceptance criteria
- Identify defects, non-conformances, and material irregularities
- Review Mill Test Certificates (MTCs) and QA/QC documentation
- Assess pump and valve integrity under operating conditions
- Prepare inspection reports suitable for audits and certification

WHO SHOULD ATTEND

- Mechanical Engineers
- Piping Engineers
- Plant Engineers
- Maintenance Engineers
- Reliability Engineers
- Inspectors
- Technical Managers
- Boiler and Utilities Personnel

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Advanced Pump & Valve Inspection, Testing and Compliance

Fundamentals of Pumps and Valves

- Pump classifications (Centrifugal, Positive Displacement)
- Valve types (Gate, Globe, Ball, Butterfly, Check, Plug, Control)
- Pressure classes and ratings
- Materials of construction
- Flow control principles
- Basic failure mechanisms

Valve Inspection Standards Overview

- Introduction to industry standards:
 - **API 598**
 - **API 6D**
 - **ASME B16.34**
- Scope and applicability of API 598
- Differences between API 598 and API 6D
- Pressure-temperature ratings

API 598 Valve Inspection Requirements

- Visual inspection requirements
- Marking and identification verification
- Casting quality checks
- Dimensional verification
- Test preparation procedures
- Cleanliness and assembly checks

Pressure Testing Procedures (API 598 Focus)

- Hydrostatic shell test
- Backseat test (where applicable)
- High-pressure seat test
- Low-pressure air test
- Test pressure calculations
- Test duration requirements
- Leakage acceptance criteria
- Safety precautions during testing

Pump Inspection & Testing

- Pre-installation inspection
- Alignment verification
- Shaft and bearing inspection
- Seal inspection (Mechanical seals)
- Hydrostatic casing tests
- Performance testing basics
- Vibration & condition monitoring basics
- Pump acceptance testing procedures

Leakage Criteria & Acceptance Limits

- Understanding allowable leakage classes
- Bubble count method (air test)
- Zero leakage requirements
- Soft-seated vs metal-seated valve testing
- Interpreting test failures

Documentation & Quality Control

- Inspection Test Plans (ITPs)
- Test certificates
- Pressure test reports
- Traceability and tagging
- Compliance documentation
- Third-party inspection coordination

Common Defects & Troubleshooting

- Casting defects
- Seat leakage causes
- Improper assembly
- Gasket failures
- Pump cavitation damage
- Valve stem leakage
- Corrective actions and re-testing procedures

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Live Online Training | 14 – 15 May 2026



Booking Contact (Approving Official) Mr/Mrs/Ms

Full Names: _____

Company name: _____

Direct Tel No: _____ E-mail: _____ Fax: _____

VAT No: _____

Address: _____

Signature _____

Person Responsible for Finance: _____ Direct Tel No: _____ Date of Payment: _____

BANKING DETAILS:

Independent Training Management Pty Ltd

Bank: FNB South Africa

Account Number: 62685879276

Branch Code: 251650

Branch: Randburg

THE FOLLOWING HEREBY CONFIRM ATTENDANCE TO THE WORKSHOP

Delegate1: Names _____

Position: _____ E-Mail: _____

Delegate 2: Names _____

Position: _____ E-Mail: _____

Delegate 3: Names _____

Position: _____ E-Mail: _____

Delegate 4: Names _____

Position: _____ E-Mail: _____

Delegate 5: Names _____

Position: _____ E-Mail: _____

All fees are current at the time of going to print; however, we reserve the right to change them.

2. Additional Delegate Rates:

Additional delegate rates apply when bookings are made at the same time on the same course.

3. Confirmation Instructions:

On receipt of this submitted booking form and payment or purchase order you will receive a confirmation letter by email confirming your participation in the training event.

This includes a location map with directions and venue details and starting times.

4. Attendance:

Please note that no learner will be permitted to attend any training course without proof of payment or an order no.

5. Delegate Substitution:

Substitutes can be made at any time without incurring a penalty. Please inform us in writing so we can make the necessary arrangements for the new learner.

6. Payment:

Payment can be made by cheque or by electronic transfer, and must be received 5 working days prior to the commencement of the course.

Please quote the reference number from your invoice and organisation name so that payments can be tracked. All cancellations must be done in writing and emailed directly to Independent Training. Management Inform us immediately if you have to re-schedule or cancel the booking so that we can inform the caterers and conference venue.

The following charges apply if you cancel:

- 11 - 30 days before a course = 10% of the course fee

- 6 – 10 days before a course = 20% of the course fee

- 4 – 6 days before a course = 30% of the course fee

- 1-3 days before a course = 50% of the course fee