



TUV / IICS 3.1 CERTIFIED WELDING INSPECTOR & API 577 WELDING INSPECTION & METALLURGY

COURSE DURATION: 7 DAYS

ARE YOUR INSPECTORS / ENGINEERS PREPARED TO DEAL WITH THE RISING DEMAND IN QUALITY DURING PROJECT PREPARATION, EXECUTION & POST FABRICATION STAGE?

Certified Welding Inspectors play a vital role in the fabrication industry. Their responsibilities have a direct bearing on final product quality and thus public safety.

By adhering to specifications and following an inspection plan, they are VITAL in helping industry to avoid repairing and costly project delays.

WHAT IS THE UNIQUENESS OF TUV / IICS 3.1 CWI?

PRACTICAL APPROACH, which fulfils the industrial requirements on Welding Engineering & Inspection.

- Approximately 90% of pressure vessel, boiler, storage tank & piping projects in Middle East & Asia Pacific are based on American design, fabrication & inspection approach such as API, ASME or AWS codes & standards.
- Designed to equip inspectors & QC personnel with the required knowledge & expertise of welding processes & metallurgy, inspection & testing and certification of procedures, welders & welding operators according to those international codes & standards.

WHAT WOULD YOU GET?

This course also prepares delegates for DOUBLE certification exams:

- * TUV / IICS 3.1 CERTIFIED WELDING INSPECTOR
- * OFFICIAL API 577 WELDING INSPECTION & METALLURGY

COURSE OBJECTIVES

The course provides participants with the knowledge in:

- ✓ Welding processes, welding positions, welding consumables, weld preparation and welding drawing requirements
- ✓ Basics of welding metallurgy
- ✓ Usage of welding inspection and measuring devices
- ✓ Visual inspection of welded constructions and correctly identify and evaluate welding imperfections as per acceptance levels associated to pre-production, fabrication and post fabrication
- ✓ Usage of various specifications, codes and standards
- ✓ Evaluation of welder's certificates and welding procedure specifications acc. to ASME IX
- ✓ Evaluate the preparation of test pieces for destructive tests and verify their compliance with applicable specifications
- ✓ Various parent materials and welding consumable (acc. to ASME)
- ✓ Reviewing NDT reports on welding work; ensuring that NDT personnel are properly qualified and that certification is relevant and valid for the testing performed
- ✓ Interpreting drawings and specifications, having understanding of weld symbols

COURSE OUTLINE

DAY 1

History of Welding

Welding Inspection & The Welding Inspector

Welding and Inspection Safety Practices

Welding Terminology

Visual Inspection

- Methods of visual inspection in accordance to ASME V, Article 9
- Requirements for visual examination in accordance with ASME V and API 577
- Welding examination tools

DAY 2

Weld Discontinuities and Defects

Joining Processes , Basics & Principles of Arc Welding Welding Consumables

Basic Welding Metallurgy & Thermal Considerations,

DAY 3

Weldability of Carbon Steel

- Heat effects in welding (HAZ)
- Weldability
- Heat Input & Arc Energy



WHO SHOULD ATTEND?

- Highly recommended for Inspectors, QA/QC personnel, Welding Engineers, Project Engineers & technicians, API 510, 570, 653 inspectors and other professionals from industry such as Petro & Oleo chemical, chemical, construction & others
- Suitable also for school leavers and candidates with less or minimal experience in the field of welding technology

For API 577 examinees:

- * please refer to the Exam qualification requirements at: www.api.org/icp

- The effect of hydrogen in steel
- Preheat, its application and control
- Calculating preheat temperature
- Cold cracking, Hot cracking, Lamellar tearing

DAY 4

Visual Inspection Plate (Practical)

- Theory & Practical exercises

Visual Inspection—Pipe (Practical)

- Theory & Practical exercises

DAY 5

Basics of Pre-heating & Post Weld Heat Treatment (PWHT)

ASME Sect. IX (Welding Procedures; Welder Certifications)

- How to interpret and review a Welding Procedure Specification?
- How to interpret and review a Welding Qualification Certificate?

DAY 6

Filet Welds acc. to ASME VIII & ASME B31.3

Introduction in Non Destructive Testing (NDT); NDT in the ASME code

- Radiographic Testing
- Dye Penetrant Testing
- Magnetic Particle Testing
- Other NDT methods

Destructive Testing

- Tensile testing, Bend Testing, Impact Testing, Fracture Testing
Hardness testing, Marco Testing

Weld Joint Geometry and Welding Symbols acc. to AWS

- How to read a production drawing?

DAY 7

Basics of Quality Assurance during Welding Projects

- ISO 3834, ASME VIII Div. 1, API 577
- Quality documents

Material Inspection

- Material inspection process
- Material marking
- Mill certificates (EN 10204, ASME)
- Welding consumables

Pressure & Leak Testing

- Pressure Testing acc. to ASME VIII, ASME B31.3, ASME PCC-2

Hot Tapping (API Publ. 2201)



COURSE DURATION

- 7 Days Training

DAILY SCHEDULE

- 9:00am - 5:00pm (Workshop)

ITEMS TO BRING

- Calculator
- Laptop
- Lots of Questions
- A "CAN-DO" Attitude
- Code books
 - * **ASME IX** (latest edition, Welding part only)
 - * **ASME V** (latest edition, Art. 2, 6, 7, 9, 10)
 - * **API 577** (latest edition)

COMPLIMENTARY

**Technical Training Pass Book
will be provided to new
participant.**





TRAINER'S PROFILE

LUTZ SEIBT

Lutz Seibt has more than 30 years hands-on experience as an Authorized Inspector and Auditor acc. to German Pressure Vessel (AD-2000 Merkblaetter), Boiler (TRD) and Storage Tanks Codes, Pressure Equipment Directive (PED), Transportable Pressure Equipment Directive (TPED) and European Construction Material Directive; 9 years out of it within TUV's International Business Units in Asia Pacific.

He has conducted numerous training sessions related to Pressure Equipment and Welding Technology (based on American and European standards) in Malaysia, Indonesia, Singapore, Thailand, Russia, Korea, China, Myanmar and Vietnam.

Technical Qualifications

- ✓ Certified International Welding Engineers (International Institute of Welding - IIW, Germany)
- ✓ Certified API 510 Pressure Vessel Inspector
- ✓ Certified API 570 Piping Inspector
- ✓ Certified API 577 Welding Inspection & Metallurgy Professional
- ✓ API certified Source Inspector
- ✓ Certified Pedestal Crane Inspector acc. to API RP 2D (Cranetech Training & Inspection, Inc., USA)
- ✓ Certified Safety Engineer (Fachhochschule Frankfurt, Germany)
- ✓ ISO 9001 & ISO 14001 Lead Auditor
- ✓ Environmental Auditor (Technical Academy Esslingen, Germany)
- ✓ Bachelor Degree – Motor Vehicle Engineering

COURSES CONDUCTED

- API 510 Pressure Vessel Inspector
- API 570 Piping Inspector
- API 577 Advanced Welding Inspection & Metallurgy Professional cum IHRC Welding Inspector
- ASME IX & AWS D1.1 "Welding Qualification"
- ASME VIII Division 1 "Pressure Vessel"
- European Pressure Equipment Directive (PED) 97/23/EC Simplified
- IDC Piping Specialist - Part 1: ASME B31.3 Process Piping
- Pressure Relief Valves
- Leak or Pressure Testing of Pressure Equipment
- Material Certificates (EN10204 / EN10168 / ISO10474)