



Accredited Africa Training Institute for Capacity Development

Unit FO409, Hatfield Plaza · 1122 Burnett St, Hatfield 0028 · Pretoria, Gauteng · South Africa

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COURSE BROCHURE

Pipe Butt Welding Positional Welding Techniques Training

Manufacturing, Engineering and Technology / Fabrication and Extraction

Unit Standard 115745 · NQF Level 3 · 9 Credits · 6 Days

COURSE OVERVIEW

This course equips learners with the skills and knowledge to perform pipe butt welding in positional welding techniques, including vertical, horizontal, and overhead positions. It covers welding procedures, safety practices, and quality control to ensure compliance with industry standards. Successful completion prepares learners for advanced welding roles in construction, piping, and maintenance sectors.

Category	Manufacturing, Engineering and Technology
Subfield	Fabrication and Extraction
Unit Standard	115745
Accreditation	SAQA Accredited · NQF Level 3 · 9 Credits
Duration	6 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Demonstrate the ability to set up and prepare pipe butt weld joints for positional welding.
- Apply appropriate welding techniques for vertical, horizontal, and overhead pipe positions.
- Analyze weld defects and implement corrective actions to meet quality standards.
- Evaluate weld integrity through visual inspection and non-destructive testing methods.
- Implement safety procedures and comply with relevant health and safety regulations during welding operations.

WHO SHOULD ATTEND

- This course is designed for welders, boilermakers, and artisans who need to advance their skills in pipe butt welding across various positions.
- It is also suitable for technicians and supervisors seeking to understand positional welding techniques.

COURSE OUTLINE

Day 1: Introduction to Pipe Butt Welding and Safety

- Overview of pipe butt welding and unit standard 115745 requirements.
- Safety in the welding workshop: hazards, PPE, fire prevention, and ventilation.
- Pipe materials (carbon steel, stainless steel) and preparation (beveling, cleaning).
- Welding positions: flat (1G), horizontal (2G), vertical (5G), and inclined (6G).
- Welding equipment: power sources, torches, regulators, and filler metals.
- Basic electrode and filler wire selection for carbon steel pipes.
- Practical: setting up workstation, tack welding in flat position.
- Documentation: welding procedure specifications (WPS) and quality records.

Day 2: Flat and Horizontal Position Welding (1G & 2G)

- Review of day 1: safety, equipment setup, and tack welding.
- Flat position (1G) welding techniques: travel speed, arc length, and bead placement.
- Horizontal position (2G) welding: managing gravity and weld pool sag.
- Root pass, hot pass, fill passes, and cap pass techniques.
- Common defects: porosity, slag inclusion, lack of fusion, and undercut.
- Visual inspection criteria per AWS D1.1 or relevant standard.
- Practical: weld test pieces in 1G and 2G positions.
- Self-assessment and peer review of weld quality.

Day 3: Vertical Position Welding (5G)

- Vertical position (5G) challenges: gravity, heat control, and technique selection.
- Vertical-up vs vertical-down: advantages, applications, and parameters.
- Weaving techniques: stringer beads and weave beads for vertical welds.
- Managing penetration and reinforcement in vertical welds.
- Defect prevention: lack of sidewall fusion, excessive convexity, and burn-through.
- Practical: vertical position weld on pipe coupon (5G).
- Interpass cleaning and temperature control.
- Weld testing: bend test preparation and interpretation.

Day 4: Inclined Position Welding (6G) – Fundamentals

- 6G position: pipe axis at 45°, combining horizontal and vertical challenges.
- Welding sequence: root pass technique (open root or backing ring).
- Torch angle and travel speed adjustments for uphill and downhill sections.
- Body positioning and movement around the pipe.
- Filler metal selection and amperage settings for 6G.
- Practical: root pass on 6G coupon.
- Common issues: lack of root penetration, suck-back, and excessive reinforcement.
- Quality checks: root face appearance and internal penetration.

Day 5: Advanced 6G Techniques and Multi-Pass Welding

- Multi-pass welding in 6G: sequencing of fill and cap passes.
- Interpass temperature monitoring and control.
- Cap pass techniques for smooth, uniform reinforcement.
- Destructive testing: guided bend test (face and root) and nick break test.
- Weld defect analysis and corrective measures.

- Practical: complete full 6G weld (root, fill, cap).
- Weld preparation for testing: cutting, polishing, etching.
- Review of welding procedure specification (WPS) compliance.

Day 6: Integration, Assessment, and Certification

- Final practical assessment: 6G pipe butt weld (carbon steel).
- Visual inspection and dimensional checks.
- Destructive testing: guided bend test and macro-etch if required.
- Documentation: completion of weld logs, inspection reports, and portfolio.
- Feedback session: individual results and areas for improvement.
- Certification requirements and career pathways.
- Course evaluation and Q&A.;
- Issue of certificates of competence.

ASSESSMENT & CERTIFICATION

Delegates are assessed through exercises and a final test. A mark of **50% or above** earns an **AATICD Certificate of Completion**, issued digitally with a unique verification code. This course carries **9 NQF credits** at **NQF Level 3**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 25,600.00	R 25,600.00
1	In-House	R 33,300.00	R 33,300.00
1	On-Campus (Pretoria)	R 38,400.00	R 38,400.00

UPCOMING SESSIONS

Start	End	Method	Venue
05 Aug 2026	12 Aug 2026	On-Campus	Johannesburg, South Africa
06 Aug 2026	13 Aug 2026	On-Campus	Mauritius
07 Aug 2026	14 Aug 2026	On-Campus	Cape Town, South Africa
10 Aug 2026	17 Aug 2026	On-Campus	Pretoria, South Africa
11 Aug 2026	18 Aug 2026	On-Campus	Abu Dhabi, UAE
12 Aug 2026	19 Aug 2026	On-Campus	Durban, South Africa
12 Aug 2026	19 Aug 2026	On-Campus	Mauritius
13 Aug 2026	20 Aug 2026	On-Campus	Cape Town, South Africa

Contact us if no suitable date is listed – on-demand sessions can be arranged for groups.

HOW TO GET A QUOTE OR APPLY

1. **Get an instant quotation online:** visit www.aaticd.co.za, open the page for this course (Unit Standard 115745) and click **Get A Quote / Apply**. Select your training method and number of delegates – your quotation is generated immediately and emailed to you with the course brochure attached.
2. **Apply by email:** send the course title, your preferred training method (Online, In-House or On-Campus Pretoria), the number of delegates and your preferred dates to apply@aaticd.co.za – our team will reply with a formal quotation.
3. **Apply by phone or WhatsApp:** call +27 12 004 8389 or WhatsApp +27 65 077 6310 and we will prepare your quotation and reserve your seats.
4. **Confirm your booking:** accept the quotation and settle the invoice. As soon as payment is confirmed your delegates are enrolled and receive their AATICD LMS login details by email, along with joining instructions for their chosen training method.

Group discounts apply automatically – the more delegates you enrol, the lower the price per delegate. No payment is required to request a quotation.

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