



CERTIFICATION SCHEME FOR PERSONNEL

DOCUMENT No. CSWIP- EPA-PPW-33-20

Requirements for the End Point Assessment of Apprentice Plate and Pipe Welders Level 3

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Issued under the authority of the Governing Board for Certification
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FOREWORD

The Certification Scheme for Personnel (CSWIP) is a comprehensive scheme which provides for the examination and certification of individuals seeking to demonstrate their knowledge and/or competence in their field of operation. The scope of CSWIP includes among others, Welding Inspectors, Welding Supervisors, Welding Instructors, Welding Examiners, Welding Quality Control Co-ordinators, Heat Treatment Operatives, Cathodic Inspection personnel, Plant Inspectors, Underwater Inspectors, Plastics Welders and NDT personnel.

CSWIP is managed by the Certification Management Board, which acts as the Governing Board for Certification, in keeping with the requirements of the industries served by the scheme. The Certification Management Board, in turn, appoints specialist Management Committees to oversee specific parts of the scheme. All CSWIP Boards and Committees comprise member representatives of relevant industrial and other interests. TWI Certification Ltd is accredited by UKAS to BS EN ISO/IEC 17024 for certification of personnel.

TWI Certification Ltd understands the importance of impartiality in carrying out its certification activities, managing conflict of interest and ensuring the objectivity of all its certification activities, in accordance with BS EN ISO/IEC 17024.

ACCESS TO CERTIFICATION

Access to certification schemes is not improperly restricted. The criteria for certification are given in the document (and any subsequent amendments) and no other criteria will be applied. Certification is not conditional on the candidate applying for other services or membership from TWI Certification Ltd, its parent, or any other groups or associations.

Definitions

Training Body – a competent organisation for the training of welding apprentices. Training Bodies must be listed on the Register of Apprenticeship Training Providers:
<https://www.gov.uk/guidance/register-of-apprenticeship-training-providers>

Assessment Organisation – TWI CL is a competent organisation for the theoretical and practical testing of welding apprentices as defined in the Assessment Plan published at
<https://www.instituteforapprenticeships.org/apprenticeship-standards/pipe-welder/>
<https://www.instituteforapprenticeships.org/apprenticeship-standards/plate-welder/>

Skill/knowledge modules – different combinations of welding processes, parent materials and welding positions as listed in the Assessment Plans

Authorised Examiner – a competent person, with a valid CSWIP Welding Examiner certificate and appointed by TWI Certification Ltd, to conduct the end-point assessment in accordance with the Assessment Plan.

1 GENERAL

1.1 Scope

This document describes procedures by which personnel shall be examined, and if successful, qualified as a Plate or Pipe Welder.

1.2 Responsibilities of Personnel

1.2.1 Plate Welder (Level 3)

Plate welders are fully competent in manual welding using at least two welding process/material combinations.

1.2.2 Pipe Welder (Level 3)

Pipe Welders are fully competent in manual welding using at least three welding process/material combinations.

1.3 Requirements prior to taking a certification test

The applicant will have completed an approved apprenticeship in accordance with standard ST0852/AP1 or ST0851/AP1 details are given at <https://www.instituteforapprenticeships.org/apprenticeship-standards/>.

The apprenticeship Plate Welder Level 3 programme for full time apprentices should typically spend 36 months on-programme (before the gateway) working towards the occupational standard, with a minimum of 20% off-the-job training. All apprentices will spend a minimum of 12 months on-programme.

The apprenticeship Pipe Welder Level 3 programme for full time apprentices should typically spend 48 months on-programme (before the gateway) working towards the occupational standard, with a minimum of 20% off-the-job training. All apprentices will spend a minimum of 12 months on-programme.

Prior to undertaking the end-point assessment, apprentices will be required to undergo a sustained period of on- and/or off-the-job training.

The End Point Assessment period should only start, and the End Point Assessment be arranged, once the employer is satisfied that the apprentice is consistently working at or above the level set out in the occupational standard, all of the pre-requisite gateway requirements for EPA have been met and that they can be evidenced to an EPAO.

The knowledge requirements are listed in the Apprenticeship Standard and more details are given at <http://www.theweldinginstitute.com/education-and-development/uk-apprenticeships/trailblazer-welding-apprenticeships/>

The practical skills required are listed in the Assessment Plans (ST0851/AP01 ST0852/AP01 respectively) and are selected by the employer. The apprentice will be required to demonstrate that they have achieved the skill requirement for welding plate or pipe with the completed test pieces meeting the required levels of quality in accordance with the selected specification.

The candidate will be required to successfully achieve qualifications at level 1 in English and Mathematics and also to have taken examinations at level 2, for both subjects, within the period of apprenticeship if not already achieved for Level 2 and have successfully achieved qualifications at Level 2 in English and Mathematics for Level 3.

When apprentices have completed the mandatory aspects of the standard and the employer, with input from the Training Provider, decides that the apprentice is occupationally competent and ready the End Point Assessment can be conducted. The employer will provide a statement confirming that the apprentice has the required level of Mathematics and English, and that the apprentice has completed a minimum of 20% off-the-job training and has received a continuous on-programme assessment of knowledge, skills and behaviours such that the apprentice is ready for the end point assessment.

2 Examination Procedure for Plate Welder Level 3

The End Point Assessment can be conducted at a TWI Welder Training Facility, at Training Providers with CSWTO Certification, or at Training Providers who undergo a successful audit by an Authorised Examiner, or at an employer's premises if a recognised ISO 3834 certification is held. The End Point Assessment consists of three parts:

2.1 A theoretical knowledge test consisting of 30 questions:

- Five questions must relate to the health & safety knowledge statements K24 and K25
- Five questions must relate to the materials knowledge statements K1 and K2
- Ten questions must relate to the process knowledge statements K4, K5, K6, K16 and K17
- Ten questions must relate to the quality knowledge statements K18, K20, K21, K22 and K28

Apprentices must get four of the five health and safety questions correct for K24 and K25 and if they do not, the test result will be fail.

In addition the apprentice must get a total of 18 or more questions correct (including the health and safety questions) and if they do not; the test result will be fail.

2.2 A Professional Discussion supported by Apprentice's portfolio

The rationale for this assessment method is:

- The professional discussion is supported by a portfolio of evidence, enabling the apprentice to demonstrate the application of skill and behaviours as well as knowledge
- It allows for testing of responses where there are a number of potential answers that couldn't be tested through the multiple-choice or practical tests
- It is a cost effective assessment method and does not require additional resources
- It allows the apprentice to be assessed against KSBs that may not occur naturally on a daily basis, would take too long to observe or do not lend themselves to direct observation

2.3 Practical Skills Test

The rationale for this assessment method is:

- The occupation involves practical activity best assessed through practical demonstration as it is relatively simple to replicate the working environment in a valid way and one in which employers would accept the occupational competence of an individual. It is expected that apprentices will be assessed in their workplace to ensure they are able to demonstrate competence in the real work environment. Where this is not possible (for example where the access to the employer's location is limited for security reasons), the EPAO is responsible for ensuring that the apprentice is assessed under normal conditions, in a familiar environment, using familiar resources/equipment that are representative of the apprentice's workplace. The External Quality Assurance provider is responsible for determining the impact of an alternative location on the validity and comparability of end-point assessments. Where access to an employer's site requires the independent assessor to be accompanied by a Facility Escort, the employer is responsible for liaising with the EPAO to ensure that this is provided.
- The practical demonstrations reflect tasks that would be completed by pipe welders on a regular basis; tasks not best suited to a practical skills test are assessed via the other assessment methods

Apprentices must be observed by an independent assessor completing three practical skills tests in which they will demonstrate the KSBs assigned to this assessment method. The independent assessor shall select a range of test pieces to allow demonstration of skills on different materials, processes and welding positions. The end-point assessment organisation will arrange for the practical skills tests to take place, in consultation with the employer. Practical skills tests must be carried out over a maximum total assessment time of nine hours. Questioning must be completed within the total time allowed for the practical demonstration.

The practical skills test will be expected to be undertaken over 2 working days, preferably concurrent working days.

2.4 Grading for Plate welder level 3

The grading is summarised in Table 1 & Table 2

Table 1

| KSBs | Fail | Pass | Distinction |
|---|---|--|--|
| K1, K2, K4, K5, K6, K16, K17, K18, K20, K21, K22, K24, K25, K28 | Below 18 marks (60%) OR Less than 4 marks for K24 and K25 | 18 to 23 marks (60% to 79%) AND a minimum of 4 marks for K24 and K25 | 24 marks (80%) or above AND a minimum of 4 marks for K24 and K25 |

Table 2

| Welding Capability K3, K9, K10, K11, K12, K26, S12, S19, S20, B1, B2 | |
|--|---|
| Fail | Does not meet pass criteria |
| Pass | <p>Explains fundamental features of each welding process, and key differences in productivity, shielding of the arc and weld pool</p> <p>Interprets a given Welding Procedure Specification from Portfolio or selected from Practical Observation testing, to explain features of welding preparation, welding process and consumable selection, welding parameters, thermal treatment.</p> <p>Explains sources of information available where further clarification is needed in Welding and associated activities within their organisation and the limitations in their authority to proceed.</p> <p>Illustrates through reference to Portfolio completing pipe or tube welding activities to cover:</p> <ul style="list-style-type: none"> • 2 selected welding processes from TIG, MMA, PAW, MIG/ MAG, FCAW • 4 selected material groups, • 3 main joint configurations (Pipe Butt, Set-on Branch, Socket |

3 Examination Procedure for Pipe Welder Level 3

3.1 A theoretical knowledge test consisting of 30 questions:

The End Point Assessment can be conducted at a TWI Welder Training Facility, at Training Providers with CSWTO Certification, or at Training Providers who undergo a successful audit by Authorised Examiner, or at an employer's premises if a recognised ISO 3834 certification is held. The End Point Assessment consists of three parts:

- Five questions must relate to the health & safety knowledge statements K24 and K25
- Five questions must relate to the materials knowledge statements K1 and K2
- Ten questions must relate to the process knowledge statements K4, K5, K6, K16 and K17
- Ten questions must relate to the quality knowledge statements K18, K20, K21, K22 and K28

Apprentices must get four of the five health and safety questions correct for K24 and K25 and if they do not, the test result will be fail.

In addition the apprentice must get a total of 18 or more questions correct (including the health and safety questions) and if they do not; the test result will be fail.

3.2 A Professional Discussion supported by Apprentice's portfolio

The rationale for this assessment method is:

- The professional discussion is supported by a portfolio of evidence, enabling the apprentice to demonstrate the application of skill and behaviours as well as knowledge
- It allows for testing of responses where there are a number of potential answers that couldn't be tested through the multiple-choice or practical tests
- It is a cost effective assessment method and does not require additional resources
- It allows the apprentice to be assessed against KSBs that may not occur naturally on a daily basis, would take too long to observe or do not lend themselves to direct observation

3.3 Practical Skills Test

The rationale for this assessment method is:

- The occupation involves practical activity best assessed through practical demonstration as it is relatively simple to replicate the working environment in a valid way and one in which employers would accept the occupational competence of an individual. It is expected that apprentices will be assessed in their workplace to ensure they are able to demonstrate competence in the real work environment. Where this is not possible (for example where the access to the employer's location is limited for security reasons), the EPAO is responsible for ensuring that the apprentice is assessed under normal conditions, in a familiar environment, using familiar resources/equipment that are representative of the apprentice's workplace. The External Quality Assurance provider is responsible for determining the impact of an alternative location on the validity and comparability of end-point assessments. Where access to an employer's site requires the independent assessor to be accompanied by a Facility Escort, the employer is responsible for liaising with the EPAO to ensure that this is provided.
- The practical demonstrations reflect tasks that would be completed by pipe welders on a regular basis; tasks not best suited to a practical skills test are assessed via the other assessment methods

Apprentices must be observed by an independent assessor completing three practical skills tests in which they will demonstrate the KSBs assigned to this assessment method. The independent assessor shall select a range of test pieces to allow demonstration of skills on different materials, processes and welding positions. The end-point assessment organisation will arrange for the practical skills tests to take place, in consultation with the employer. Practical skills tests must be carried out over a maximum total assessment time of nine hours. Questioning must be completed within the total time allowed for the practical demonstration.

The practical skills test will be expected to be undertaken over 2 working days, preferably concurrent working days.

3.4 Grading for Pipe Welder Level 3

The grading is summarised in Table 1 & Table 2

Table 1

| KSBs | Fail | Pass | Distinction |
|---|---|--|--|
| K1, K2, K4, K5, K6, K16, K17, K18, K20, K21, K22, K24, K25, K28 | Below 18 marks (60%) OR Less than 4 marks for K24 and K25 | 18 to 23 marks (60% to 79%) AND a minimum of 4 marks for K24 and K25 | 24 marks (80%) or above AND a minimum of 4 marks for K24 and K25 |

Table 2

| Welding Capability K3, K9, K10, K11, K12, K26, S12, S19, S20, B1, B2 | |
|--|---|
| Fail | Does not meet pass criteria |
| Pass | <p>Explains fundamental features of each welding process, and key differences in productivity, shielding of the arc and weld pool</p> <p>Interprets a given Welding Procedure Specification from Portfolio or selected from Practical Observation testing, to explain features of welding preparation, welding process and consumable selection, welding parameters, thermal treatment.</p> <p>Explains sources of information available where further clarification is needed in Welding and associated activities within their organisation and the limitations in their authority to proceed.</p> <p>Illustrates through reference to Portfolio completing pipe or tube welding activities to cover:</p> <ul style="list-style-type: none"> • 2 selected welding processes from TIG, MMA, PAW, MIG/ MAG, FCAW • 4 selected material groups, • 3 main joint configurations (Pipe Butt, Set-on Branch, Socket |

4 Unsuccessful Candidates

Knowledge test – two retests are available in the sections failed. If the apprentice fails the second retest, he/she must retake the applicable theoretical training before taking another test. Results of all knowledge tests are to be passed back to employer for review. A retest will not be permitted on the same day as the initial test.

Practical test and oral examination – one practical re-test is available but further welding practice relevant to any shortcomings identified in the test is recommended. If the apprentice fails the oral examination, two further attempts at this part are permitted. If the second retest is failed, further training will be required. At the Authorised Examiner's discretion with appropriate conditions and time permitting a practical retest may be conducted on the same date as the initial practical tests. Oral examinations will not be permitted on the same day as the initial test..

Professional Discussion – the shortcomings identified in the Discussion must be addressed and documented evidence provided before a second Discussion can be conducted. If the apprentice fails to meet the requirements in the second Discussion, at the discretion of the Authorised Examiner, the apprentice can be given the option of presenting documentary evidence, within 14 days, of how he/she has addressed the shortcomings identified during the Discussion. The Authorised Examiner may then decide to award a pass grade on the basis of any additional evidence presented, or may decide on an alternative course of action.

5 Successful Candidates

Candidates who successfully complete the End Point Assessment will have their details uploaded onto the EPAO Certification Service Information Management Services System for the issue of the Apprenticeship Certificates.

6 Application for Examination and Fees

Registered Training Providers will be required to submit an Application Form, see www.twiclepa.com. All the information requested must be on these forms. No applications can be considered confirmed until receipt of correctly completed documents. Application forms ask for specific details and must be signed to the effect that these details are correct.

In the event of a false statement being discovered on forms any examination undertaken will be declared null and void. A certificate is automatically invalidated if there are any outstanding examination fees in respect of that certificate.

Candidates who breach examination rules will not be accepted as a candidate for any CSWIP examination for a minimum period of five years from the date of the examination where cheating, attempt to remove or removal of examination material, was established to have taken place.

7 Complaints and appeals

An aggrieved party in a dispute which considers itself to have reasonable grounds for questioning the competency of a CSWIP qualified person may petition the Governing Board for withdrawal of the certificate. Such a petition must be accompanied by all relevant facts, and if in the opinion of the Board an adequate case has been presented, a full investigation of the circumstances under dispute will be initiated. If the petition is substantiated to the satisfaction of the Board, the certificate will be withdrawn and no renewal or recertification made available without a further test.

Appeals against failure to certify or against non-renewal of the certificate may be made by the apprentice or the employer upon application in writing to the Governing Board.

8 RECORDS

TWI Certification Ltd maintains records of successful and unsuccessful candidates. These records are accessible to the Governing Board or its nominees at all reasonable times.

9 ADDRESSES

For further general information contact:

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Website: www.cswip.com

10 References

1. EWF/IIW Guideline – European/International Welder. Minimum Requirements for the Education, Examination and Qualification. IAB-089 r5-15.
2. BS 4872 - Specification for approval testing of welders when welding procedure approval is not

required.

3. ISO 9606-1. Qualification testing of welders. Fusion welding. Steels. and ISO 9606-2. Qualification test of welders. Fusion welding. Aluminium and aluminium alloys.
4. ASME IX - ASME Boiler and Pressure Vessel Code Section IX-Welding, Brazing, and Fusing Qualifications.
5. AWS D1.1. American National Standard. Structural Welding Code – Steel.
6. Employer Occupational Brief for Level 2 and 3 Welding Apprenticeship Standards:
<https://www.theweldinginstitute.com/careers-and-education/careers-in-welding/welding-trailblazer-apprenticeship/>
7. ISO/IEC 17024 - Conformity assessment - General requirements for bodies operating certification of persons
8. BS EN ISO 9712 - Non-destructive testing. Qualification and certification of NDT personnel
9. ISO/IEC 17025 - General requirements for the competence of testing and calibration laboratories