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Approver: Ian Hogarth – Technical Manager

Introduction

This scheme has been created to document how Scheme for the qualification of Welders, and Welding operators, in order to carry out the examination and certification of individuals seeking to demonstrate their knowledge and/or competence in their field of Welding.

This scheme is reviewed annually by a committee of competent persons selected by the Technical Manager which oversees that the associated Certification activities and the requirements of industry are achieved by the scheme. The committee will comprise of the Company Technical Management as well as competent representatives from the fabrication and welding industries.

All examinations will be carried out in accordance with the Company's Impartiality Policy, by managing any conflicts of interest and ensuring the full compliance of its certification activities, in accordance with BS EN ISO/IEC 17024.

Access to certification

The Access to certification is not restricted but an adequate level of experience in the associated welding processes would be expected.

1 General

Scope of Certification

This document prescribes the requirements for the qualification of Welders and Welding operators by NECIT Services Ltd, carrying out witnessing processes. Upon demonstrating the required competencies and passing the weld test, certification can be granted for a range of International Standards, or any other relevant standard or client specification which requires independent accredited third-party approval.

If mechanical testing or NDT is needed in relation to a welder qualification or a welding procedure qualification test, the Examining Body or manufacturer if stated in the standard, must employ an NDT Technician with a minimum of iso 9712 level 2 certificate using procedures which have been approved by an ISO9712 level 3. They shall also use a test house with the appropriate scope of approval that is accredited to ISO 17025 by UKAS or an organisation that is a signatory to the Multilateral Agreement or Arrangement schemes administered by European Co-operation for Accreditation (EA), the International Accreditation Forum (IAF) or the International Laboratory Accreditation Co-operation (ILAC) or a second party supplier audit of the test laboratory by the Welding Examiner can be conducted to ensure compliance with the relevant standards.

Responsibilities

NECIT, acting as the Examining / Certifying Body carries overall responsibility, ensuring that the requirements for qualification testing are satisfied and that the applicable qualification certificates are issued once the candidate has successfully passed associated tests. Job knowledge tests when required by the Standard or client can also be conducted.

Job Task and Description

The Welders, Welding Operators will be required to demonstrate welds of various types, for example: (MAG, MIG, TIG etc.

111	manual metal arc welding	(SMAW)
114	self-shielded tubular cored arc welding	(FCAW-S)

Certification Scheme for Welders and Welding Operators in accordance with ISO 17024

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121	submerged arc welding with solid wire electrode (partly mechanized)	(SAW)
125	submerged arc welding with tubular cored electrode (partly mechanized)	(SAW)
131	MIG welding with solid wire electrode	(GMAW)
135	MAG welding with solid wire electrode	(GMAW)
136	MAG welding with flux cored electrode	(FCAW)
138	MAG welding with metal cored electrode	(GMAW)
141	TIG welding with solid filler material (wire/rod)	(GTAW)
142	autogenous TIG welding	(GTAW)
143	TIG welding with tubular cored filler material (wire/rod)	(GTAW)
145	TIG welding using reducing gas and solid filler material (wire/rod)	(GTAW)
311	oxyacetylene welding	(OAW)

Required Competencies and Abilities

There are no defined competence requirements for a candidate to be examined as a Welder or Welding Operator, however an adequate level of experience in the relevant welding processes would be expected. There are no specific abilities required for a candidate to be considered for examination. Based on the experience and knowledge of the Technical Manager we are aware that a welder with less than 6 months experience may struggle to achieve a satisfactory weld.

Pre-requisites

Pre-requisites required to be considered for examination are as follows:

- Either a pWPS or WPS
- Photographic identification in its original state
- Valid calibration certificates for any welding equipment to be used during the examination
- Where applicable, any consumable or material certificates
- A suitable area in which to carry out the examinations. Where possible, the area should be away from the main working area, have suitable lighting and ventilation, with limited access by others.

Code of Conduct

Prior to the examination taking place, the candidate will have already signed the contract document which specifies the rules of the examination process. Candidates are made aware that any changes which could affect their abilities to carry out welding should inform NECIT Services Ltd as soon as possible. Examination cannot take place if the

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candidate is under the influence of either drugs or alcohol. Should the candidate be taking any prescribed medication which could have an effect on their abilities to weld, they should make the Examiner aware.

The particular requirements for qualification testing are described in the appropriate standard. It is the Applicants responsibility to select the standard. Testing and the issue of certificates will only be carried out to recognised national and international standards, noting that the rules covering testing and validity of qualification certificates vary from standard to standard.

It is the Applicant and Candidates responsibility to ensure that the relevant standard(s), appropriate to their requirements, in the recognition and acceptance of qualification are clearly defined in the Application Contract for Examination (NECIT-FRM-013). A completed application form should be returned to NECIT prior to the examination taking place. In the event a false statement is discovered on the completed Application, any the examination and any testing undertaken will be declared null and void.

2 Standards

Qualification testing and certification is available in accordance with the current issues of the standards listed below:

Welders and Welding Operators Testing

- BS EN ISO 9606-1: Qualification testing of welders. Fusion welding. Steels
 - BS EN ISO 9606-2: Qualification test of welders. Fusion welding. Aluminium and aluminium alloys
 - BS EN ISO 9606-3: Approval testing of welders. Fusion welding. Copper and copper alloys
 - BS EN ISO 9606-4: Approval testing of welders. Fusion welding. Nickel and nickel alloys
 - BS EN ISO 9606-5: Approval testing of welders. Fusion welding. Titanium and titanium alloys, zirconium and zirconium alloys
 - AWS D1.1: Structural Welding Code – Steel
 - AWS D1.2: Structural Welding Code – Aluminium
 - ASME Section IX: Boiler and Pressure Vessel code. Welding and brazing qualifications
 - ISO 14732 Welding personnel – Qualification testing of welding operators and weld setters for mechanised and automatic welding of metallic materials
 - BS 4872-1 Specification for approval testing of welders when welding procedure is not required. Fusion welding of steel
 - BS 4872-2 Specification for approval testing of welders when welding Aluminium
 - Other appropriate standards may be used as the above list may not cover all testing eventualities
- Other appropriate standards may be used as the above list may not cover all testing eventualities

Acceptance Criteria Standards

BS EN ISO 5817 - Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding

BS EN ISO 10042 - Arc-welded joints in aluminium and its alloys. Quality levels for imperfections

AWS D1.1 - Structural welding code - steel

AWS D1.2 - Structural welding code - aluminium

BS 4872-1 Specification for approval testing of welders when welding procedure is not required. Fusion welding of steel

BS 4872-2 Specification for approval testing of welders when welding Aluminium

ASME IX - Boiler and Pressure Vessel Code

3 Scheme Certification Processes

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Criteria for initial certification and recertification

For initial certification the welder / welding operator is expected to complete a weld which meets the requirement of the selected procedure and which passes any subsequent mechanical or NDT testing which may be required. Recertification of welders takes place after a period of time as defined in the relevant standard. All conditions and requirements for both initial and recertification are the same.

In regard to ISO 9606-1 Clause 9.3 Revalidation of Welder Qualification, the certification can be prolonged by a suitably competent person as long as all of the requirements of the clause are met. In this case the surveillance would be carried out by the Applicant and any prolongation approved by NECIT Services Ltd.

NECIT Services Ltd is also able to re-certify approvals for Welders and Welding Operators which have been previously issued by another UKAS accredited Certification Body, as long as all required conditions are met.

Welders and Welding Operators

The NECIT Examiner is responsible for ensuring that the requirements of the standard selected by the manufacturer are fulfilled. The standards are prescriptive and require no additional criteria.

Criteria for Suspending and Withdrawing Certification

Details of the procedure to be followed in the event of a situation resulting in the suspension or withdrawal of certification, have been documented in the Certification, Suspension and Withdrawing Procedure (NECIT-PRO-012).

Criteria for Changing the Scope or level of Certification

Changes to the scope or level of certification would be dependent on changes or amendments being applied to the applicable standards on which the scheme is based. Changes would be reviewed by the Technical Manager and internal documents amended accordingly.

Application for Testing and Fees

Manufacturers or individuals will be required to submit completed application forms to NECIT. These forms are issued by NECIT and all the required information must be on these forms. In the event of any information found to be a false statement on the completed form provided by the manufacturer, any testing undertaken will be declared null and void. Approval certificates are automatically invalidated if there are any outstanding fees

Development and Review of the Certification Scheme

Involvement of Appropriate Experts

Full responsibility of this scheme document has been assigned to the Technical Manager in order to ensure its continued relevance and that periodic reviews are carried out. There is no requirement for external expertise due to the Technical Manager's qualification, skill and extensive industry experience. The Scheme is supported by a management system containing all required policies and procedures according to ISO 17024.

Scheme structure

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This scheme has been created based on the requirements of all interested parties, as detailed in the below table. There are no predominating interests which could have an effect on the delivery of the scheme. An impartial expert is available to review any feedback from customers, as well as any complaints or appeals. Details will be evaluated to ensure all parties have been fairly treated. Details of the review will form part of the Management Review process and be documented within the minutes.

Interested Party	Involvement and Interest	Control Method
Customer (Applicants)	Certified welders/welding operators	Using an accredited CB
Welder/Welding Operative	Passing welder qualifications	Examination to defined criteria
Certification Body – back office	Clear understanding of the business process	Training on relevant procedures and good communication with TM
Examiners	Qualified, trained and competent	Job Description, internal training and monitoring
UKAS	Well documented Management System and continued adherence to the standard	Regular surveillance of the CB

Identification and Alignment of the Assessment Mechanisms

The following procedures have been written to identify the correct process to be followed for the examination of Welders and Welding Operators:

NECIT-PRO-006 – Welder Examination Operations Process
NECIT-PRO-010 – Handling, Storage, Packaging and Preservation and Delivery Procedure
NECIT-TECH-001 – Welder Qualification Examination Process
NECIT-TECH-002 – Weld Procedure Examination Procedure
NECIT-TECH-003 – ISO 14732 Welder Qualification Examination Procedure

Review and validation of the Scheme

This scheme (NECIT-QM-002) will be reviewed annually and will form part of the management review meeting. All relevant departments, individuals and where required, technical experts will be included. Any changes to the scheme or any relevant standards would require additional review and validation. An annual audit of the scheme will also be carried out.

Ownership of the Scheme

NECIT Services Ltd retain full and sole ownership of this scheme.

4 Qualification certificates

Qualification certificates are issued in accordance with the standard being applied, see [Section 2](#). Certificates are issued to the Company or Individual (the paying customer). Duplicate certificates may be issued to replace any which have been lost or destroyed. This will only be done after extensive enquiries by NECIT.

The period of validity of a qualification certificate for a Welder and Welding Operator and the conditions for renewal are covered by the selected standard.

5 Re-Certification of Welder Qualifications

Welders and Welding Operators

NECIT Shall be responsible for ensuring that the requirements of the standard selected by the client are fulfilled. The standards are prescriptive and require no additional criteria. Revalidation shall be carried out by a competent examiner
NECIT Shall revalidate Welder and Welding Operators qualification certificates.

NECIT Shall also revalidate any certificates which have been produced under any other UKAS accredited bodies for Welder, Welding Operators qualification certificates.

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The skill of the welder shall be periodically verified by one of the following methods.

- a) The welder shall be retested every 3 years.
- b) Every 2 years, two welds made during the last 6 months of the validity period shall be tested by radiographic or ultrasonic testing or destructive testing and shall be recorded. The acceptance levels for imperfections shall be as specified in Clause 7. The weld tested shall reproduce the original test conditions except for thickness and outside diameter. These tests revalidate the welder's qualifications for an additional 2 years.
- c) A welder's qualifications for any certificate shall be valid as long as it is confirmed according to clause 9.2 and provided all the following conditions are fulfilled:
 - the welder is working for the same manufacturer for whom he or she qualified, and who is responsible for the manufacture of the product.
 - the clients quality programme has been verified in accordance with ISO 3834-2 or ISO 3834-3.
 - the client has documented that the welder has produced welds of acceptable quality based on application standards; the welds examined shall confirm the following conditions: welding position(s), weld type (FW, BW), material backing (mb) or no material backing (nb).

Revalidation requirements of Standards

BS EN ISO 9606-1

As per the below excerpt from BS EN ISO 9606-1

we default to 9.3 a) unless otherwise requested. 9.3 c) is not acceptable in accordance with PED 2014/68/EU

9.3 Revalidation of welder qualification

Revalidation shall be carried out by an examiner/examining body.

The skill of the welder shall be periodically verified by one of the following methods.

- a) The welder shall be retested every 3 years.
- b) Every 2 years, two welds made during the last 6 months of the validity period shall be tested by radiographic or ultrasonic testing or destructive testing and shall be recorded. The acceptance levels for imperfections shall be as specified in Clause 7. The weld tested shall reproduce the original test conditions except for thickness and outside diameter. These tests revalidate the welder's qualifications for an additional 2 years.
- c) A welder's qualifications for any certificate shall be valid as long as it is confirmed according to 9.2 and provided all the following conditions are fulfilled:
 - the welder is working for the same manufacturer for whom he or she qualified, and who is responsible for the manufacture of the product;
 - the manufacturer's quality programme has been verified in accordance with **ISO 3834-2** or **ISO 3834-3**;
 - the manufacturer has documented that the welder has produced welds of acceptable quality based on application standards; the welds examined shall confirm the following conditions: welding position(s), weld type (FW, BW), material backing (mb) or no material backing (nb).

BS EN ISO 9606-2

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9.3 Prolongation of qualification

Welder's qualification test certificates according to this document can be prolonged every two years by an examiner/examining body.

Before prolongation of the certification takes place, 9.2 needs to be satisfied and also the following conditions need to be confirmed:

- a) All records and evidence used to support prolongation are traceable to the welder and identifies the WPS(s) that have been used in production;
- b) Evidence used to support prolongation shall be of a volumetric nature (radiographic testing or ultrasonic testing) or for destructive testing (fracture or bends) made on two welds during the previous six months. Evidence relating to prolongation needs to be retained for a minimum of two years;
- c) The welds satisfy the acceptance levels for imperfections as specified in Clause 7;
- d) The test results mentioned in 9.3 b) shall demonstrate that the welder has reproduced the original test conditions.

NOTE Examples for variables to be confirmed and traceable see Annex D.

BS EN ISO 9606-3

10.2 Prolongation

The validity of the approval on the certificate can be prolonged for further periods of two years, within the original range of approval, provided each of the following conditions according to 10.1 are fulfilled:

- a) the production welds made by the welder are of the required quality;
- b) records of tests, e.g. either half yearly documentation about radiographic testing or test reports about fracture test, shall be maintained on file with the welder's approval certificate.

The examiner or examining body shall verify compliance with the above conditions and sign the prolongation of the welder's approval test certificate.

BS EN ISO 9606-4

10.2 Prolongation

The validity of the approval on the certificate may be prolonged for further periods of two years, within the original range of approval, provided each of the following conditions according to 10.1 are fulfilled:

- a) the production welds made by the welder are of the required quality;
- b) records of tests, e.g. either half yearly documentation about radiographic testing or test reports about fracture test shall be maintained on file with the welder's approval certificate.

The examiner or examining body shall verify compliance with the above conditions and sign the prolongation of the welder's approval test certificate.

BS EN ISO 9606-5

10.2 Prolongation

The validity of the approval on the certificate can be prolonged for further periods of two years, within the original range of approval, provided each of the following conditions according to 10.1 are fulfilled:

- a) the production welds made by the welder have been of the required quality;
- b) records of tests, e.g. either half yearly documentation about radiographic testing or test reports about destructive testing, shall be maintained on file with the welder's approval certificate.

The examiner or examining body shall verify compliance with the above conditions and sign the prolongation of the welder's approval test certificate.

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ASME BPVC IX**QW-322 EXPIRATION, REVOCATION, AND
RENEWAL OF QUALIFICATION**

QW-322.1 Expiration. The qualification of a welder or welding operator for a process remains valid provided no more than 6 months have passed since the welder or welding operator last used that process. Continuity of qualification shall be confirmed by the qualifying or participating organization(s) as identified in [QG-106.2](#) and [QG-106.3](#), respectively.

A welder using manual or semiautomatic welding prolongs qualification for both manual and semiautomatic welding for that process. A welding operator using machine or automatic welding prolongs qualification for machine or automatic welding for that process.

QW-322.2 Revocation. When there is a specific reason to question the welder's or the welding operator's ability to make welds that meet the specification, the qualifications that support the welding being performed shall be revoked. All other qualifications not questioned remain in effect.

QW-322.3 Renewal of Qualification.

(a) Renewal of qualification that has expired under the rules of [QW-322.1](#) may be achieved for any process by welding a single test coupon of either plate or pipe, of any material, thickness or diameter, in any position, as required by [QW-301](#) and successfully completing the testing required by [QW-302](#). This successful test renews the welder or welding operator's previous qualifications for that process for those materials, thicknesses, diameters, positions, and other variables for which he was previously qualified.

Providing the requirements of [QW-304](#) and [QW-305](#) are satisfied, renewal of qualification under [QW-322.1](#) may be done on production work.

(b) Welders and welding operators whose qualification(s) have been revoked under the provisions of [QW-322.2](#) above shall requalify. Qualification shall utilize a test coupon appropriate for the revoked qualification(s). The coupon shall be welded as required by [QW-301](#) and tested as required by [QW-302](#). Successful completion of the qualification test restores the revoked qualification(s).

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BS EN ISO 14732**5.3 Revalidation of qualification**

Revalidation shall be carried out by an examiner/examining body.

The competence of the welding operator or weld setter shall be periodically verified by one of the following methods:

- a) The welding operator or weld setter shall be retested every six years.
- b) Every three years, two welds made during the last six months of the validity period shall be tested by radiographic or ultrasonic testing or destructive testing and the results shall be recorded. The acceptance levels for imperfections shall be as specified in the application standards. The weld tests shall reproduce the original test conditions. These tests revalidate the qualification for an additional three years.
- c) A qualification for any certificate shall be valid as long as it is confirmed in accordance with [5.2](#) and provided all the following conditions are fulfilled:
 - the welding operator or weld setter is working for the same manufacturer for whom he or she qualified and who is responsible for the manufacture of the product;
 - that the manufacturer's [ISO 3834-2](#) or [ISO 3834-3](#) quality requirements have been proven by verification;
 - that the manufacturer has documented that the welding operator or weld setter has produced welds of acceptable quality based on application standards.

AWS D1.1M**4.2.3 Period of Effectiveness**

4.2.3.1 Welders and Welding Operators. The welder's or welding operator's qualification as specified in this code shall be considered as remaining in effect indefinitely unless:

(1) the welder is not engaged in a given process of welding for which the welder or welding operator is qualified for a period exceeding six months, or

(2) there is some specific reason to question a welder's or welding operator's ability (see [4.24.1](#)).

4.2.3.2 Tack Welders. A tack welder who passes the test described in Part C or those tests required for welder qualification shall be considered eligible to perform tack welding indefinitely in the positions and with the process for which the tack welder is qualified unless there is some specific reason to question the tack welder's ability (see [4.24.2](#)).

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BS 4872-1**6 Reapproval of welder**

The reapproval of a welder shall be required if any of the following apply:

- a) the welder is to be employed on work outside the extent of his current approval (see 3.1);
- b) the welder changes his employer without the transfer of his approval test certificate;
- c) six months or more have elapsed since the welder undertook any welding;
- d) there is some specific reason to question the welder's ability.

NOTE Reapproval every two years is recommended.

BS 4872-2**8 Re-approval of welder**

The re-approval of a welder shall be required if any of the following apply:

- a) the welder changes his employer without the transfer of his test records;
- b) six months or more have elapsed since the welder undertook any welding of aluminium or aluminium alloys;
- c) there is some specific reason to question the welder's ability.

6 Complaints and Appeals

An aggrieved party, which considers itself to have reasonable grounds for questioning the competency of an approved certified Welder or Welding Operator, may request non-renewal of the certificate. Such a request must be accompanied by all relevant facts and if in the opinion of the Technical Manager, an adequate case has been presented, a full investigation of the circumstances under dispute will be initiated. If the complaint is found to be accurate and to the satisfaction of the Technical Manager the certificate will not be renewed without a further test.

Appeals against failure to certify or against non-renewal of the certificate may be made by the candidate or the manufacturer upon application in writing to the Committee **but must** be within six months of the original date of examination.

7 Records

NECIT maintain records of examinations and tests. Full records are only held for a period of twelve months from the date of the original test, only the associated certificate and any associated test report details are maintained on file. Details shall be maintained electronically and can be made available on request for the Company or Individual (the paying customer).