



**Gammax Independent Inspection Services Limited**

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**GCS-01**

**Scheme for the Certification of Welders,  
Welding Operators and Brazers  
in accordance with ISO 17024**

## Revisions

Issue 1	Initial release
Issue 2	Changes to all sections
Issue 3	Review and changes to all sections
Issue 4	Scheme reviewed and changed under prerequisites
Issue 5	Scope of Certification updated
Issue 6	Update to table on Page 5, Scope of Certification, Appendix 3
Issue 7	Change to Appendices
Issue 8	Full list of prerequisites added, changes made to appropriate experts table
Issue 9	Update to Appendix 3, Testing Standards
Issue 10	Update to (a) and Appropriate Experts list

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## **Scope of Certification**

Gamax Independent Inspection Services Ltd (GIIS) performs the supervision and subsequent assessment of welders, welding operators, brazers and brazing operators performing a range of professional joining processes and subsequently certifies the individual in accordance with British and International standards provided competency is adequately demonstrated. The required tests for welder/brazer qualification are detailed in the appropriate standard. For confirmation of standards against which the certificate is offered please see Appendix 3.

We measure the professional competency of candidates by observing them as they perform a weld test against a Weld Procedure Specification, a preliminary Weld Procedure Specification, a Brazing Procedure Specification or a preliminary Brazing Procedure Specification. Candidates perform welds/brazing in various processes, such as MAG, MMA, TIG and Brazing, and are assessed in doing so. Competency is monitored in two stages: initially a visual inspection of the completed weld/braze using required standards, and our internal procedures. Once visual inspection is successfully completed in accordance with the specified standards detailed in the qualification code, additional tests can include radiography, bend tests, fracture tests and macro examination. If the test piece passes these stages, then we will proceed to certify the candidate against the relevant standard.

## **Information for Potential Candidates: Skills & Competences**

Whilst not a barrier to examination taking place, we prefer candidates to have at least 6 months welding experience prior to undertaking the weld test – if this has not been achieved, we will perform a knowledge test to confirm understanding prior to commencing the test. This will take the form of a verbal or written examination. Excellent vision, hearing and mobility are also core candidate attributes.

Candidates must provide valid photographic identification (no prints or photocopies) such as a passport or drivers' licence at the time of the examination. A passport style photograph will be taken of the candidate by the examiner should they wish their photograph to be on the certificate at the time of the examination.

## **Candidate Contractual Code of Conduct**

Upon application the candidate must sign the Gamax Independent Inspection Services Ltd's Certification Application Form FO-58, declaring that we must be informed should any significant changes to their ability to weld in accordance with their certification occur. The candidate must not be under the influence of any substances. If the candidate is taking prescription drugs that could impact their performance, they must make us aware prior to commencing the test.

**Our Certification Scheme includes the following certification process requirements:**

- i) **Criteria for initial certification and recertification** - Gamax performs both the certification and recertification of welders after a predisposed period of time as stipulated in the standard. The valid certificate can be prolonged for a qualified individual if the relevant criteria are met for the appropriate welding or brazing qualification standard. When all the requirements for certification or recertification are met, a decision will be made by the independent decision maker whether certification should be granted or not.

- ii) **Assessment methods for initial certification and recertification** - The process for both initial and recertification are identical as both require the inspection of a weld/braze completed by the candidate and the subsequent testing of the welded/brazed item.
- iii) **Surveillance methods & criteria** - Supervision would be undertaken by Gammex Independent Inspection Services Ltd who will also review previous NDT certificates to confirm that the candidate has been working to the required standards.
- iv) **Criteria for suspending & withdrawing certification** - The criteria and policy for suspending or withdrawing certification is given in the Certification Application Form FO-58.
- v) **Criteria for changing the scope or level of certification** – In the event that any of the applicable standards undergo significant change, or in the event of a new welding/brazing standard being introduced, the scope or level of certification will be reviewed and may be adjusted accordingly, after review.

**Development and review of the certification scheme the following elements have been included:**

- a) **The involvement of appropriate experts** – There is no requirement for external expertise as the technical manager is sufficiently qualified and experienced to be the expert lead under the scope of the scheme. Gammex Independent Inspection Services Ltd draws upon experts in different industries, as listed below, to review the scheme on an annual basis in order to develop the scheme. Gammex Independent Inspection Services Ltd maintains a quality management system that involves all the required policies and procedures which address the requirements of BS EN ISO/IEC 17024.

Individual	Qualification/Experience	Company	
William Brennan	PCN Level 3 Welding Inspector	CAB	
Cheryl Selfe	ISO 17020 experience	CAB	
Dean Escreet	Qualified Lead Assessor	IQA Services	External Consultant
Colin Short	Diploma in Welding	ECCAS International – Global	Welding Consultant
Ian Williams	PCN Level 3 NDT		NDT Consultant
Paul Bradley	Quality Manager	Verigas Engineering Ltd	Brazing
Stuart Chance	Quality Manager	Adanac Valves Specialities Ltd	Valves
Phil Doughty	Managing Director	Allied Storage Tanks	Structural
Robin Chaplin	Managing Director	R A Chaplin Ltd	Pipework
Keith Dixon	Lecturer, CEng FWeldl	West Suffolk College	Welder Training
Sharon Mead	Factory Control Manager	Anglia Fabrication and Design Ltd	
Ian Hart	General Manager	HF Bond Engineered Solutions	

- b) **The use of an appropriate structure that fairly represents the interests of all parties significantly concerned without any interest predominating** – The scheme has been written to incorporate the requirements of all parties. There are no predominating interests. Gammax Independent Inspection Services Ltd uses their impartial quality consultant to review feedback received from clients, along with complaints, appeals and their resolutions to evaluate that the needs of all parties are being addressed. This is done annually as part of the management review process.

### **The identification and alignment of prerequisites with the competence requirements**

Prior to sitting a welding or brazing test, the operator shall comply with the 'Typical Roadmap for Gaining Welding and Brazing Certification' which is Appendix 6 of this document and is available on Gammax website. For welding operators, brazing operators and welders or brazers using an automatic process, the minimum experience will be one month. When required by the particular standard, all welders and brazers shall be given a theory test based on the particular process they are using. This can take the form of either a verbal or written examination.

Each welding/brazing qualification is based on the appropriate international standards and the specified requirements are detailed on the WPQ.

### **Prerequisites**

Prior to commencement of the joining process, the suitably qualified examiner shall confirm the following items:

- All relevant Health and Safety requirements are complied with. The welder/brazer has suitable eye protection and a welding hand shield as a minimum.
- Ensure Certification Application Form FO-58 has been completed and signed.
- Identification of welder/brazer checked, by driving licence or passport only, and recorded on Witness Report, FO-62. Take passport style photograph and record date of birth and welder number, if required.
- Confirm welder/brazer has good eye to hand coordination, good eyesight and is physically fit for the required test. A prior eyesight test is not mandatory as can be assessed at time of welding.
- When required by the appropriate standard, a job knowledge test will be administered. See section 7.0.
- Verify material and welding consumables.
- Ensure a pWPS, WPS, PQR, pBPS or BPS is available.
- Check the test piece and joint fit-up meet the requirements of the pWPS/WPS/PQR/pBPS/BPS.
- Check all necessary consumables, tools and equipment are available and in safe working order.
- The welding machine has been calibrated and suitably maintained along with the welding return lead and welding torch.
- Gas Bottles/Cylinders securely stored and the pressure gauge is compliant to standards.

- Suitable Welding Screen to protect personnel.
- Suitable fume extraction either on the torch or close to the torch is in place.
- If any volumetric inspection reports are available to confirm the welder's ability prior to the test.
- Check to see if the welder/brazer requires any special needs prior to the commencement of test.

**i) The identification and alignment of the assessment mechanisms with the relevant competence requirements.**

Documentation used to identify the assessment processes are as follows:

- WQC-001 – Witnessing of Permanent Joints including Welding and Brazing Procedure Qualifications
- GI-001 – Procedure for Goods Received
- VT-2 – Procedure for Visual Detection of Surface Breaking Defects in Pressure Retaining Welds (British Standards)
- VTP-05 – Procedure for Visual Detection of Surface Breaking Defects (ASME)
- RTP-01 – Procedure for the Radiographic Testing of Ferritic Welds (British Standards)
- RTP-02 – Procedure for Radiographic Examination of Casting & Welds (ASME)
- BT-01 – Procedure for Bend Testing on Welds in Metallic Materials
- M-01 – Procedure for Macro Examinations
- FWFT-01 – Procedure for Fillet Weld Fracture Testing
- FO-58 - Certification Application Form
- FO-62 - Witness Report

As outlined in WQC-001, the welder's suitability is carried out prior to welding by referring to the completed Certification Application Form. Gammax Independent Inspection Services Ltd certifies and re-qualifies welder approvals in line with the requirements set out in the relevant standards.

Should a welder qualification certificate be issued as part of completing a welding procedure, then two separate certificates will be issued, one for the procedure and one for the qualification test. A welding procedure test is to verify the integrity of the joint. A welder qualification test is less onerous and checks the ability of the welder to perform the required test.

**ii) Gap Analysis** – has been carried out on the ISO 17024 management system prior to the accreditation project being launched, this has been completed and all competence requirements, prerequisites and recertification requirements have been identified and addressed.

**Gammax Independent Inspection Services Ltd, as a certification body, will ensure that the certification scheme is reviewed and validated on an on-going systematic basis** – The certification scheme shall be reviewed as a minimum on an annual basis at the Management Review Meeting with all relevant department heads involved. As part of the review, an independent meeting including an external and impartial expert will take place to review the certification scheme and ensure the interests of all parties are considered. Should there be any changes to the standards against which the scheme certifies individuals, then additional reviews will be undertaken, as necessary.

**Gammax Independent Inspection Services Ltd is the sole owner of the certification scheme and shall ensure that its development and review are assessed at the management meeting.**

Upon successful completion of a welding/brazing examination all candidates will be issued with a certificate stating the following;

- a) the name of the successful candidate
- b) a unique Certification Number
- c) Gammax Independent Inspection Services Ltd as the certified body
- d) reference to ISO/IEC 17024
- e) the scope of the certification including any limitations including joint type and thickness and the expiry date of the certificate
- f) all welding and brazing certificates issued will be embossed with company name.

### **Complaints and Appeals**

All parties shall be treated fairly and in an impartial manner through the implementation of the following procedure.

Where a person is not satisfied with a decision by Gammax Independent Inspection Services Ltd they will have the right to appeal in writing stating his/her case in detail to the Quality Manager of Gammax Independent Inspection Services Ltd. The appeal must be made within four weeks of the test date.

Such an appeal must be accompanied by all relevant facts and evidence, and if in the opinion of the Certification Body, an adequate case has been presented, an investigation by Gammax Independent Inspection Services Ltd of the circumstances will be undertaken. Should it be considered that an inadequate case has been presented, i.e the appellant stating erroneous or misleading facts, then he will be informed that he has no grounds for complaint or appeal and that no further action will be taken by the certification body.

The Managing Director of Gammax Independent Inspection Services Ltd will ensure that all relevant information/correspondence is gathered including the person's written statement. Once satisfactorily investigated a certificate may be removed, not renewed, not issued or re issued.

Similarly, any complaint regarding any aspect of Gammax services should be made to GIIS within 4 weeks of occurrence and will then be investigated in an impartial manner.

Both appeals and complaints are handled in line with GIIS Operating Procedure 'OP-10 Corrective & Preventative Action inc Complaints and Appeals' which has been drafted in line with both ISO 17020 and ISO 17024.

The procedure also ensures that individuals are kept informed regarding the progress of their complaint or appeal, including when GIIS has completed their process.

All correspondence relating to complaints and appeals will be filed in the complaints and appeals folder under ISO 17024 or ISO 17020 as appropriate.



## **Misuse of Certificates and Logos**

It is the policy of Gammax Independent Inspection Services Ltd to control how certificates, brand names, marks and logos are used, and to take action in the event of their misuse.

Gammax Independent Inspection Services Ltd recognises that it has a duty to all holders of certificates to ensure that their professional status and valid integrity is maintained, and to eliminate, as far as possible, their fraudulent use or any associated misrepresentations of technical competency.

A set of rules and guidelines, defining the correct use of certificates (and indicating their possible misuse) is printed on application Form (FO-58). It is a strict condition of the issue of certificates of competence or capability that candidates accept these Regulations. Attempts to pass off forged certificates as real ones by using marks or logos mentioned in this procedure will be dealt with severely as allowed by English Law.

## Appendix 1 – Initial Certification and Recertification

Gamax Independent Inspection Services Ltd requalifies welder approvals in line with requirements set out in the relevant standards.

As per the below excerpt from **BS EN ISO 9606-1:2017** we default to 9.3 a) unless otherwise requested. 9.3 c) is not acceptable in accordance with PE(S)R.

### 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 of BS EN ISO 9606-1. 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 of 9606-1:2017 and provided all the following conditions are fulfilled:
  - the welder is working for the same manufacturer for who he or she qualified, and who is responsible for the manufacture of the product;
  - the manufacturer's quality programme has been certified 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 positions(s), weld type (FW, BW), material backing (mb) or no material backing (nb).

### Welders and Welding Operators.

The welder's or welding operator's qualifications 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.

**Appendix 2 - Certification Application Form – FO-58 Rev.11**  
Certification Application Form  
For Welders, Welder Operators and Brazers in accordance with ISO 17024:2012

Candidate's Name:

I consent/do not consent to my date of birth on the certificate (please delete as applicable)

I consent/do not consent to my photograph on the certificate (please delete as applicable)

(ID will be checked and photograph will be taken, if consent given, at time of test)

Candidate's Date of Birth:

Address:

E-mail Address:

Telephone Number:

Employer Name:

Brief description of welding experience including processes and months/years (in box below);

Certification Requested

Standard Requested	Process (GCS-01 Appendix 5)	Material	Pipe/Sch. Plate/Thk
BS 4872-1:1982			
BS 4872-2:1976			
BS EN ISO 9606-1:2017			
BS EN ISO 9606-2:2004			
BS EN ISO 9606-3:1999			
BS EN ISO 9606-4:1999			
BS EN ISO 9606-5:2000			
ASME IX : 2023 (QUALS ONLY)			
BS EN ISO 14732: 2013			
BS EN ISO 13585:2012 (BRAZING)			
AWS D1.1			

The Examiner does not offer welding advice or consultation in the course of conducting welder qualifications. The responsibility for submitting the test piece lies with the welder.

Code of Conduct

1. I agree to comply with the requirements of the certification scheme of Gammox Independent Inspection Services Ltd (available on website; [www.gammox.co.uk](http://www.gammox.co.uk)) and by signing this form I consent to supplying the above information.
2. I understand that the certificate can be suspended or withdrawn in the event of a complaint by my Employer or Third Party.
3. I have the right to make an appeal against a decision or make a general complaint within four weeks of a certification test/examination.
4. I must not misuse or falsify the certificate. If I do, it will result in the certificate being withdrawn.
5. I agree to work in a professional manner with due regard to Employer Confidentiality.
6. I will notify Gammox as soon as possible if anything arises affecting my ability to continue to fulfil my certification requirements.
7. Do you require any special needs during your exam? i.e. dyslexia YES/NO If yes, please detail:  
 .....  
 .....
8. I understand that if caught cheating during the exam, I will be disqualified and forfeit all fees paid.
9. I confirm that the details I have given are correct.
10. By signing this form this constitutes a contract between myself and Gammox Independent Inspection Services Ltd.

Signed:

Date:

Gammox Signature:

Date:

### Appendix 3 – Testing Standards

BS 4872-1	Specification for approval testing of welders when welding procedure approval is not required. Fusion welding of steel.
BS 4872-2	Specification for approval testing of welders when welding procedure is not required. TIG or MIG welding of aluminium and its alloys.
ISO 9606-1	Qualification test of welders, Fusion welding, Steels
ISO 9606-2	Qualification test of welders. Fusion welding, Aluminium and Aluminium Alloys
ISO 9606-3	Approval testing of welders – Fusion welding – Part 3: Copper and copper alloys.
ISO 9606-4	Qualification test of welders. Fusion welding. Nickel and Nickel Alloys.
ISO 9606-5	Qualification test of welders. Fusion welding. Titanium and Titanium Alloys, Zirconium and Zirconium Alloys.
ASME IX	Boiler and Pressure Vessel Code.
BS EN 14732	Welding Personnel. Qualification testing of welding operators and weld setters for mechanised and automatic welding of metallic materials.
BS EN ISO 13585	Brazing – Qualification test of brazers and brazing operators.
AWS D1.1	Structural Welding Code - Steel

#### Appendix 4 – 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.
BS 4872-2	Specification for approval testing of welders when welding procedure approval is not required.
ASME IX	Boiler and Pressure Vessel Code

### **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 the standard;
- d) The test results mentioned in 9.3 b) shall demonstrate that the welder has reproduced the original test conditions.

**QW-322.1 Continuity and Revocation of Qualification**

(a) *Continuity.* The performance qualification of a welder or welding operator shall remain valid, provided no greater than 6 months have passed since the qualified welding process was last used under the supervision and control of the qualifying or participating organisation(s) as identified in QG-106.2 and QG-106.3, respectively, by the

(1) welder using manual or semiautomatic welding,

or

(2) welding operator using machine or automatic welding

(b) *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 he is doing shall be revoked. All other qualifications not questioned remain in effect.

**QW-322.2 Renewal of Qualification**

(a) Renewal of qualification that has expired under the rules of QW-322.1(a) 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(a) may be done on production work.

(b) Welders and welding operators whose qualification(s) have been revoked under the provisions of QW-322.1(b) above shall requalify. Qualification shall utilise 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).

## BS EN ISO 14732:2013

### 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 level for imperfections shall be as specified in the application standards. The weld tests shall reproduce the original test conditions. These tests revalidate the qualifications 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.



## **BS 4872-1**

### **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;
- 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.

## Appendix 5 -Weld Processes

111	Manual metal arc welding	(SMAW)
114	Self-shielded tubular cored arc welding	(FCAW-S)
121	Submerged arc welding with solid wire electrode (partly mechanised)	(SAW)
125		(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)
51	Electron Beam	(EB)

**TYPICAL ROADMAP FOR GAINING WELDING AND BRAZING CERTIFICATION**

