European co-operation for Accreditation

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EA Guidelines on the Use of EN 45 011 and ISO/IEC 17021 for Certification to EN ISO 3834

PURPOSE

The purpose of this document is to provide the basis for the harmonisation of the assessment of welding fabricators under accreditation by members of the European co-operation for Accreditation (EA).

Authorship
This publication has been written by the Joint Working Group of EA and the European Federation for Welding, Joining and Cutting (EWF).

Official language
The text may be translated into other languages as required. The English language version remains the definitive version.

Further information
For further information about this publication, contact your national member of EA. Please check our website for up-to-date information http://european-accreditation.org

Category 2

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1 INTRODUCTION

EN 45011 (reference 1) defines criteria for bodies providing product (process and service) certification. EA has published a separate document (reference 2) giving general guidance to certification bodies seeking accreditation to EN 45011.

EN ISO 3834 'Quality requirements for fusion welding of metallic materials' (reference 3) is in five parts:

Part 1 Criteria for the selection of the appropriate level of quality requirements
Part 2 Comprehensive quality requirements
Part 3 Standard quality requirements
Part 4 Elementary quality requirements
Part 5 Documents with which it is necessary to conform to claim conformity to the quality requirements of EN ISO 3834-2, EN ISO 3834-3 or EN ISO 3834-4

The standard defines quality requirements for welding both in workshops and on site, and is appropriate when demonstration of a manufacturer's capability to produce welded construction in accordance with specified criteria is required; it can also be used as the basis for assessing a manufacturer's welding quality arrangements.

The properties of welded products cannot be confirmed by testing alone, assurance is gained by controlling the production process. If the welding production processes are controlled in accordance with EN ISO 3834 it is recognised that the quality of the welds in the final product will meet the specified criteria.

Further EA guidance on EN ISO 3834 assessment and certification is required because welding is a special process and the evaluation of all the welding related activities and welding process operations implemented by the manufacturer to achieve the required welding quality, requires particular expertise of the assessment team.

The General Assembly of EA has confirmed that the assessment and certification of the welding capability of a manufacturer in accordance with the requirements of EN ISO 3834 Part 2, 3, or 4, can be provided as an integral part of ISO 9001 assessment and certification, (ISO/IEC 17021,), or as a stand alone assessment and certification of the welding operations and associated activities which influence the integrity of welds (EN 45011, References 1 and 2).

The applicable part of EN ISO 3834 (Part 2, 3, or 4) for stand alone assessment and certification of the welding operations and activities (EN 45011) will depend on the nature of the welding activities required to meet the agreed specifications and influenced by how critical the welding operations are to the quality and fitness of the final product.

Meaningful certification should provide the purchaser (and manufacturer) with a clear statement of the manufacturer's capability to produce welded construction whether the welding controls are defined and assessed in conjunction with ISO 9001, or assessed as stand alone processes and related activities capable of producing welded construction to specified requirements.

Assessment of conformity with the requirements of EN ISO 3834 should be of sufficient depth and rigour to confirm that the manufacturer has appropriate and acceptable welding capability and controls, and is capable of producing welded construction to the specified requirements. In conjunction with ISO 9001 standard the assessment should evaluate and confirm that the required EN ISO 3834 controls are exercised over all aspects of the welding operations appropriate to the manufacturer's range of activities covered by the scope of QMS certification. A similar rigorous assessment of the welding controls and activities in accordance with EN ISO 3834– Part 2, 3, or 4 as a stand alone assessment should confirm the adequacy of welding controls to achieve the specified welded product quality requirements.

Since both assessment routes require the rigorous evaluation of welding controls and associated activities, the assessor qualifications and requirements for assessment in these guidelines apply to both routes. The confirmed welding capability must be related to the types of products, parent material and welding processes of the manufacturer that should be detailed in a schedule accompanying the certificate.

EN ISO 3834 is not certification of the final product as such, and therefore use of marks on the product is not permitted. Any certification/declaration issued by the manufacturer must confirm which part of EN ISO 3834 has been applied.

The Guidelines have been drawn up with the assistance of EWF.No accreditation body, certification body or certified company applying these guidelines may claim any recognition or authority from EWF nor may they use the EWF logo without the permission of EWF.

1.1 Definitions

The following terms are used throughout this document and definitions are given here for clarity. Alternative relevant terms are acceptable providing they are also clearly defined.

EN ISO 3834 Certification Scheme: The Scheme operated by the Certification Body for the certification of a company's welding activities in accordance with EN ISO 3834.

EN ISO 3834 Assessment Team: The group of EN ISO 3834 Assessors (including the EN ISO 3834 Lead Assessor), appointed by the Scheme Manager, which assesses the manufacturer for compliance with the ISO 3834 Certification Scheme. Depending on the specific circumstances of the assessment (e.g. size of the company, complexity of its processes, etc) an EN ISO 3834 Lead Assessor may conduct an EN ISO 3834 audit alone.

EN ISO 3834 Assessor: A person who satisfies the criteria given in Part 1 for registration by the Certification Body to perform EN ISO 3834 Certification Scheme assessments.

EN ISO 3834 Lead Assessor: The assessor who is responsible for directing the EN ISO 3834-2 Assessment Team.

EN ISO 3834 Technical Experts: Persons appointed by the Certification Body to provide specialist welding technical support within the EN ISO 3834 Assessment Team.

Evaluation System: A system involving competent person(s) for the evaluation of applicant EN ISO 3834 Assessors and Technical Experts. Such competent persons should be qualified to the level of International/European Welding Engineer or equivalent, and have a minimum of seven years' immediate past experience in welding at the level of professional engineer in one or more of the following environments: university, industry or national welding body.

International/European Welding Engineer (I/EWE) and International/European Welding Technologist (I/EWT): The qualifications defined in reference 6 and in reference 7 respectively.

The term "shall" is used throughout this document to indicate those provisions which, reflecting the requirements of ISO/IEC Guides, are mandatory. The term "should" is used to indicate those provisions which, although they constitute guidance for the application of the requirements, are expected to be adopted by a certification body. Any variation from the guidance by a certification body shall be an exception. Such variations will only be permitted on a case by case basis after the certification body has demonstrated to the accreditation body that the exception meets the requirements of the relevant clause of ISO/IEC Guides and the intent of this Guidance in some equivalent way

2 QUALIFICATION OF EN ISO 3834 ASSESSORS AND EN ISO 3834 TECHNICAL EXPERTS TO BE USED BY THE CERTIFICATION BODY

2.1 Scope

This section provides guidelines on the requirements to be met by EN ISO 3834 Assessors and Technical Experts and on the procedure leading to their registration by the Certification Body.

The criteria to achieve registration cover: qualifications and experience, attendance at orientation meetings, and professional interview. There are also criteria covering the maintenance of registration.

2.2 Qualification and experience requirements

EN ISO 3834 Assessors should be:

a) competent in quality management system auditing (in accordance with ISO 19011), and

b) have a minimum of three years' experience in the field of welding within the last five years.

Applicant EN ISO 3834 Technical Experts should:

a) be experienced specialists in the welding field, trained and qualified to the level of I/EWE or equivalent, or to the level of I/EWT or equivalent, and

b) *be able to demonstrate* current work experience spanning at least three years in fabrication by welding, and

c) be familiar with quality management systems.

2.3 Evaluation of applicant EN ISO 3834 Assessors and Technical Experts

Applicants should provide the following documentation, as applicable, to the Certification Body

i) curriculum vitae including details of training and qualifications

ii) experience in the field of welding (including a brief description of each major employment, preferably supported by relevant documentation from the employer)

iii) experience in quality management systems (including a brief description of each major employment, preferably supported by relevant documentation from the employer or other body(ies)).

The Evaluation System should be used to evaluate compliance of the applicants' professional profile with the qualification and experience requirements, by examination of the above documentation.

2.4 Orientation meetings

In order to provide the applicant EN ISO 3834 Assessors and Technical Experts with exhaustive information on the EN ISO 3834 Certification Scheme, the Certification Body should organise a specific orientation meeting which all applicant EN ISO 3834 Assessors and Technical Experts are required to attend (see Appendix 1).

2.5 Professional interview

Applicant EN ISO 3834 Assessors and Technical Experts who have satisfactorily completed steps 2.3 and 2.4 above should undergo a Professional Interview covering the subjects related to the qualification and experience requirements and the EN ISO 3834 Certification Scheme. The Professional Interview should be conducted by one or more competent person(s) as defined under 'Evaluation System' see Definitions.

In the case of a positive result, the approved EN ISO 3834 Assessors and EN ISO 3834 Technical Experts should be registered in a manner which indicates their specific experience of different welded products, processes and materials (for example see Exemplar 1).

2.6 Maintenance of proficiency

The EN ISO 3834 Assessors and Technical Experts should be required to maintain their proficiency through:

- active participation in relevant assessment activities
- sufficient updating and/or refreshing of knowledge and understanding of the relevant standards and scheme procedures

Registered EN ISO 3834 Assessors and Technical Experts should be required to keep records of such activities. The Certification Body should periodically check these records and, in addition, implement a procedure for witnessing assessments. Through these measures, criteria for evaluating the continuing competence of Assessors and Technical Experts should be set and implemented by the Certification Body.

2.7 Lead Assessor requirements

The EN ISO 3834 Lead Assessor should be an EN ISO 3834 *Assessor* with authenticated experience in the EN ISO 3834 Certification Scheme. The Certification Body should be able to demonstrate that appointed EN ISO 3834 Lead Assessors are competent to lead EN ISO 3834 assessments.

2.8 Documentation

All the documentation provided and produced as per these guidelines, should be retained by the Certification Body. The documentation should be retained for a period of not less than three years after the performance of the last assessment conducted by the registered individual.

3 ASSESSMENT OF MANUFACTURERS IN ACCORDANCE WITH EN ISO 3834 PARTS 2, 3 AND 4

3.1 Scope

These guidelines define the criteria and methods to be used by Certification Bodies to evaluate a manufacturer in accordance with the EN ISO 3834 Certification Scheme.

3.2 Procedure

3.2.1 Information phases and assessment preparation

It is important for the Certification Body to acquire sufficient initial information from the manufacturer so that it can :

- Accurately estimate the scope and cost of the task
- Ensure that appropriate EN ISO 3834 Assessors and/or Technical Experts are appointed

Exemplar 2, 'Preliminary Informative Enquiry' includes questions on all the important aspects of a manufacturers' activities that relate to EN ISO 3834. This Exemplar may be used as a guide.

The EN ISO 3834 Assessment Team should :

i) contain persons with direct product/process/materials competence in the products/processes/materials being assessed, and

ii) contain at least one individual who is qualified and experienced in welding to a level which is sufficient to demonstrate that he/she is competent to assess the company's Authorised Welding Co-ordinator(s) in accordance with EN ISO 14731, 'Welding co-ordination – tasks and responsibilities' (reference 8).

The number of assessors constituting the EN ISO 3834 Assessment Team (one or more persons) depends on the specific circumstances of the assessment (e.g. the size of the company, the complexity of its processes, etc). The EN ISO 3834 Assessment Team should comprise EN ISO 3834 Assessors (including the EN ISO 3834 Lead Assessor) and EN ISO 3834 Technical Experts such that the aggregate of their detailed qualifications, knowledge and experience is adequate and relevant for the tasks involved in the proposed assessment.

If is proposed to use only one person to conduct the assessment, this person should fulfil the requirements for both the EN ISO 3834 Lead Assessor and the EN ISO 3834 Technical Expert.

The EN ISO 3834 Assessment Team appointed by the Certification Body should be accepted by the manufacturer in advance of the assessment

The EN ISO 3834 Lead Assessor should be responsible for:

- preparing the EN ISO 3834 part of the assessment
- leading the EN ISO 3834 assessment and making the final decision on any matter regarding the EN ISO 3834 assessment
- issuing the EN ISO 3834 Assessment Report

The EN ISO 3834 Lead Assessor *should* make use of the EN ISO 3834 Assessment Team, including Technical Experts, in evaluating the manufacturer.

3.2.2 Assessment phase

The correct implementation of, and compliance with, the chosen part of the EN ISO 3834 Certification Scheme should be assessed by the EN ISO 3834 Assessment Team through interviews, examination and analysis of documents, by direct observation of the activities in the manufacturer's plant, and by inspection of the welded product and weldments.

The Assessment Team should ensure that all the requirements of the chosen part of EN ISO 3834 are assessed. Records of the whole process should be maintained. Appendix 2 contains a list of questions that cover the requirements of EN ISO 3834 Part 2. It is recommended that this list is used by Certification Bodies as an aid in the assessment process and as a means of maintaining the required records.

Special care should be taken by the EN ISO 3834 Assessment Team in evaluating the competence of the manufacturer's welding co-ordinators in accordance with EN ISO 14731 (reference 8). The Certification Body should have procedures, which demonstrate that this important aspect of ISO 3834 is properly evaluated.

Such procedures should include a peer review and challenge process* which the company's Authorised Welding Co-ordinators are interviewed and their work examined. The EN ISO 3834 Assessment Team should be able to demonstrate complete evaluation of welding co-ordination (functions and individuals) in the company. Records of this process should be maintained.

* *This means that technical discussions must take place between each Authorised Welding Co-ordinator and the relevant Assessor (see section 2.2.1 point (ii)) about the detailed technical scope of the Authorised Welding Co-ordinator's responsibilities. This process will require the Assessor to examine evidence of completed work done by each Authorised Welding Co-ordinator and to investigate his/her knowledge and understanding of it.*

The peer review process should involve the examination of specific contract(s) to assess compliance with the customer's specification in, for example, the following areas :

i) selection/development of welding procedures

ii) welding sequences

iii) NDT and heat treatment

iv) approval of personnel

v) traceability

vi) quality control and acceptance

vii) sub-contracting

In order to achieve full conformity to EN ISO 3834 Part 2, 3, or 4, a manufacturer is required to conform either to the ISO documents listed in Secion 2.2 of Part 5 of the standard, or to other documents that provide technically equivalent conditions, when these documents are referenced in the product standards for the products being made by the manufacturer. It is the responsibility of the manufacturer to demonstrate technically equivalent conditions when documents other than those listed in Part 5 of the standard are employed. Certification Bodies shall ensure that any certificates of conformance to EN ISO 3834 that they issue clearly identify the documents used by the manufacturer. Exemplar 3 indicates a way of doing this. Although EN ISO 3834 makes reference to 'inspection' and 'testing', it does not specify criteria for organisations performing these activities. The results of inspections and tests carried out by the manufacturer, or by sub-contractors, and presented as objective evidence to confirm satisfactory process controls and/or achievement of specification requirements should be fully assessed by the Certification Body.

The EN ISO 3834 Assessment Team should confirm that the manufacturer's and/or sub-contractor's facility and personnel providing inspection and testing services are conducted and controlled in a technically competent manner which provides confidence in the results obtained, and can therefore support the conclusions made, regarding process control adequacy and specification compliance.

Compliance with ISO/IEC 17020 and ISO/IEC 17025 as appropriate would provide such confidence.

If the EN ISO 3834 Lead Assessor recommends certification, he/she should also detail in the EN ISO 3834 Assessment Report the scope of the activity (for example see Exemplar 3), to be included with the certificate.

Guidance on dealing with any non-conformity found during the assessment is given in references 1, 2, 4 and 5.

3.2.3 Certification phase

The Report of the Assessment Team is submitted to the Certification Body. If certification is recommended, a competent person appointed by the Certification Body has the responsibility to decide on the issue of a certificate and on the scope of certification (for example, see Exemplar 3). Such a

person undertaking the technical review should have at least three years of experience in welding technology.

3.3 Validity and renewal

Renewal of combined ISO 9001 and EN ISO 3834 certificates issued under EN 45 012 accreditation is covered in Reference 5. Stand alone EN ISO 3834 certificates issued under EN 45011 accreditation should have a validity of five years from the date of issue, subject to satisfactory surveillance. Re-assessment is required every five years, at which time the manufacturer must follow the same procedure as for initial application and assessment.

3.4 Surveillance

Periodic surveillance of certified activities should be implemented through audits performed by the Certification Body in order to verify continuing conformity with the EN ISO 3834 Certification Scheme. This is accomplished by surveillance visits performed annually. Such visits may be more frequent if circumstances dictate, e.g. complexity, range of products, etc.

For combined ISO 9001 and EN ISO 3834 certificates issued under ISO/IEC 17021, periodic assessment of the manufacturer's continuing conformity with the requirements of EN ISO 3834 can be combined with the routine surveillance visit for ISO 9001 assessment. The monitoring of the welding processes can follow a similar arrangement as for stand alone certification detailed below, where a risk assessment by the certification body can justify such actions.

For stand alone EN ISO 3834 certificates issued under EN 45011, periodic assessment is required to confirm continuing compliance with the specified part of EN ISO 3834.

For stand alone EN ISO 3834 certificates, for the first certification period a surveillance visit must be carried out within 12 calendar months of the initial assessment. This frequency must be maintained when non conformities are identified which raise doubt on the clients ability to comply with all the requirements. Thereafter, surveillance visits may be at intervals in excess of 12 calendar months provided there have been no nonconformities[1] (1) raised during the previous surveillance visit that raise doubt about the clients ability to continue to comply with requirements, and , in addition ,where an appraisal of the following factors would not suggest a significant risk that the manufacturer's control system would deteriorate over the extended period:

- the maturity of the organisation and its management to control welding activities,
- how robust the organisation is in the operation of its welding control system,
- the level of confidence in the ability of the organisation to control its welding activities,

[1] [1] (1) Nonconformity as defined in EA-6/01

- the complexity and range of welded components produced taking account of materials, failure risk, manufacturing processes and product application.

Subject to the appraisal indicating a low risk of deterioration of the manufacturer's control system, a certification body should request completion of a questionnaire on an annual basis to identify whether there have been any critical changes to the manufacturer's products, structure and organisation and to establish that its performance remains satisfactory. Particular aspects to be considered would include (a typical questionnaire is shown in the exemplar 4):

- changes in the scope and/or design of products manufactured,
- changes in the application of or range of welding processes used,
- changes in the grades of materials welded or notable increases in existing material thicknesses,
- changes in welding coordinators or their authority,
- performance in relation to achievement of delivery schedules,
- performance in relation to extent and type of nonconformity

If the assessment of the manufacturer's response is satisfactory, the certification body may determine that a site visit is not necessary. Where changes have occurred or there is evidence of deterioration in performance, a site visit must be undertaken to assess the implications of the changes reported.

Regardless of the above, a surveillance visit must take place at least once during each five year certification period.

If the certification body and/or national regulatory requirements specify a more frequent re-certification audit (e.g. 3 years) this may be taken into consideration when the certification body considers the risks of any potential deterioration of the manufacturers control systems and implementation of the questionnaire. In such a regime and, if sufficient justification is present, this includes the right to waive the first 12 month surveillance visit

4 REFERENCES

1. EN 45 011; General requirements for bodies operating product certification systems (ISO/IEC 65:1996)
2. EA-6/01; EA Guidelines on the Application of EN 45011
3. EN ISO 3834; Quality requirements for fusion welding of metallic materials, Parts 1, 2, 3, 4 and 5
4. EN 45 012; General requirements for bodies assessment and certification/registration of quality systems (ISO/IEC Guide 62:1996)
5. EA's Guidelines on the Application of ISO/IEC 17021

6. IAB-002-2000/EWF 409 (I/EWE); International/European Welding Engineer, Minimum Requirements for Education, Training, Examination and Qualification of Personnel
7. IAB-003-2000/EWF 410 (I/EWT); Internatoinal/European Welding Technologist, Minimum Requirements for Education, Training, Examination and Qualification of Personnel
8. EN ISO 14731; Welding coordination - Tasks and responsibilities

5 LIST OF ITEMS ATTACHED

5.1 Appendices

1. Orientation Meetings
2. Questionnaires on Quality Requirements for Welding

5.2 Exemplar Forms

1. Register of Assessors
2. Preliminary Informative Enquiry
3. Proposed Schedule (to accompany the certificate)
4. Annual Questionnaire to certified manufacturer

APPENDIX 1 ORIENTATION MEETINGS

1 Introduction

The Orientation Meetings are designed to provide the applicant assessors with adequate information on the EN ISO 3834 Certification Scheme.

The following Orientation Meeting Syllabus is intended as a “minimum”; each Certification Body may give more extensive information as it sees fit.

2 Orientation Meeting Syllabus

Items

- Certification Body: general organisation and procedures
- Review of EN ISO 3834
- Comparison between EN ISO 3834 and ISO 9001
- Review of EN ISO 3834, Parts 1, 2, 3, 4 and 5
- Relationship to EN 45 011 and EN 45 012
- EA and Certification Body’s interpretation of EN ISO 3834
- Procedures for Manufacturer assessment and certification according to EN ISO 3834
- Procedures for the evaluation and registration of Assessors and Technical Experts
- Questionnaires for assessment
- Procedures for evaluation of welding co-ordinators according to EN ISO 14731

APPENDIX 2 QUESTIONNAIRES ON QUALITY REQUIREMENTS FOR WELDING

The list of questions given below is designed to cover the requirements of EN ISO 3834 Part 2. Certification Bodies are required to develop their own questionnaires based on this document which covers Parts 2, 3 and 4.

The Questionnaires should be formulated in such a way that the manufacturer, as part of the Information Phase, can provide answers to the questions, which can then be evaluated by the EN ISO 3834 Assessment Team.

6 REVIEW OF REQUIREMENTS AND TECHNICAL REVIEW

6.1 General

a) Are the data provided by the purchaser, or in-house data for construction designed by the manufacturer, reviewed by competent staff, to ensure that all information necessary to carry out the fabrication operations is available prior to the commencement of the work?

b) Does the manufacturer declare his capability to meet all welding contract requirements and ensure adequate planning of all quality-related activities?

c) Does the manufacturer verify that the contract is within his capability to perform, that sufficient resources are available to achieve delivery schedules and that documentation is clear and unambiguous?

d) Does the manufacturer ensure any variations between the contract and previous tender documentation are identified and the purchaser notified of any programme, cost or engineering changes that may result?

6.2 Application – Review of requirements

6.2.1 Does the manufacturer consider the following requirements?

a) the product standard to be used, together with any supplementary requirements;

b) statutory and regulatory requirements;

c) any additional requirement determined by the manufacturer;

d) the capability of the manufacturer to meet the prescribed requirements.

6.3 Application – Technical review

6.3.1 Does the manufacturer consider the following technical review?

a) parent material(s) specification and welded joint properties;

b) quality and acceptance requirements for welds;

c) location, accessibility and sequence of welds, including accessibility for inspection and for non-destructive testing;

d) the specification of welding procedures, non-destructive testing procedures and heat-treatment procedures;

e) the approach to be used for the qualification of welding procedures ;

f) the qualification of personnel;

g) selection, identification and/or traceability (e.g. for materials, welds);

h) quality-control arrangements, including any involvement of an independent inspection body;

i) inspection and testing;

j) sub-contracting;

k) post-weld heat treatment;

l) other welding requirements, e.g. batch testing of consumables, ferrite content of weld metal, ageing, hydrogen content, permanent backing, use of peening, surface finish, weld profile;

m) use of special methods (e.g. to achieve full penetration without backing when welded from one side only);

n) dimensions and details of joint preparation and completed weld;

o) welds which are to be made in the workshop, or elsewhere;

p) environmental conditions relevant to the application of the process (e.g. very low-temperature ambient conditions or any necessity to provide protection against adverse weather conditions);

q) handling of non-conformances.

6.4 Has the manufacturer procedures which:

a) describe the review of requirements and the technical review (whether the contract is already signed or not) to ensure that all the above mentioned points are considered?

b) specify that the welding co-ordination for these activities is carried out according to EN 719/ISO 14731?

c)

7 SUB-CONTRACTING

a) Does the manufacturer sub-contract some activities (e.g. welding, inspection, non-destructive testing, heat treatment).?

b) Are sub-contractors given all requirements necessary for carrying out the defined activities (including those concerning the contract and design review)?

c) Does the manufacturer require records and documentation of the sub-contractor's work?

d) Does the manufacturer ensure that all the activities transferred to sub-contractors are carried out in conformity with the relevant requirements of the EN ISO 3834?

e) Does the manufacturer make sure that the sub-contractor can comply with the quality requirements of the contract?

f) If the design of the product is sub-contracted are supplementary requirements (if any and when necessary) specified to the sub-contractors?

g) Has the manufacturer a written procedure, which describes how the sub-contracted activities comply with the requirements of the contract/design specification?

h) Is this procedure defining the tasks and responsibilities of the welding co-ordinator?

8 WELDING PERSONNEL

8.1 General

Can the manufacturer show that he employs sufficient and competent personnel for the planning, performing and supervising of the welding production according to the specified requirements?

8.2 Welders

a) Are all welders and welding operators qualified by an appropriate test according to EN ISO 3834 Part 5?

b) Are all records of qualification maintained up to date?

8.3 Welding co-ordination personnel

a) Has the manufacturer at his disposal appropriate welding co-ordination personnel according to EN ISO 14731?

b) Has the manufacturer at his disposal any professional figures according to the IIW/EWF qualification scheme (I/EWE, I/EWT, I/EWS and I/EWP), or equivalent qualifications?

c) Does the welding co-ordination personnel supply the welding personnel with WPS or work instructions, so as to ensure that all activities can be properly performed and controlled?

d) Has the authorised welding co-ordinator(s) sufficient authority to take necessary action for ensuring and maintaining the product quality according to the requirements specified?

e) Have the duties, inter-relationships and limits of responsibility of the weld co-ordination personnel been clearly defined by the manufacturer?

9 INSPECTION AND TESTING PERSONNEL

9.1 General

a) Has the manufacturer at his disposal sufficient and competent personnel for planning and performing, supervising, inspecting, testing and examining the welding production according to the specified requirements?

b) Has the manufacturer at his disposal any inspection personnel qualified according to the IIW/EWF scheme (I/EWIP) or equivalent qualification?

9.2 Testing personnel

a) Are the non-destructive testing personnel approved according to EN 473. ISO 9712 or other equivalent code/standard?

b) Are the destructive tests carried out in appropriately qualified facilities with personnel approved by the manufacturer?

10 EQUIPMENT

10.1 Production and testing equipment

a) Is the following equipment available, when necessary:

b) welding power sources and other machines?

c) equipment for joint preparation and cutting, including thermal cutting?

d) equipment for preheating and post-weld heat treatment, including temperature indicators?

e) jigs and fixtures?

f) cranes and handling equipment used for welding production?

g) personnel protective equipment and other safety equipment, directly associated with welding?

h) ovens and quivers, etc, used for treatment of welding consumables?

i) cleaning facilities?

j) destructive and non-destructive testing facilities?

k) has the manufacturer a written procedure for identification, control, maintenance and calibration (where relevant) of all production equipment?

l) is this procedure including the designated responsible individuals?

m) is this procedure including arrangements to prevent production use of defective equipment?

10.2 Description of equipment

a) Has the manufacturer an updated list identifying the essential equipment, used for welding production that provide an evaluation of the capacity and capability of the workshop and other production areas?

Are the following (minimum) entries indicated (where relevant):

b) capacity of the largest cranes?

c) size of components the workshop is able to handle?

d) capability mechanised or automatic welding equipment?

e) dimensions and maximum temperature of furnaces for post-weld heat treatment?

f) capacities of rolling, bending and cutting equipment?

g) number of welding power sources for each welding process?

h) other essential facilities?

10.3 Suitability of equipment

a) Are the equipment used adequate for the application concerned

b) If specified in the contract is the welding and heating equipment subject to approval?

10.4 New equipment

a) Does the manufacturer carry out approval tests in accordance with appropriate standards whenever relevant, after installation of new (or refurbished) equipment?

b) Are records of the tests kept?

10.5 Equipment Maintenance

Has the manufacturer documented plans for the maintenance of equipment, ensuring checks of those items, which control essential variables in the welding procedure specification e.g.:

a) condition of guides in equipment for thermal cutting, mechanised welding fixtures etc?

b) condition of ammeters, voltmeters and flow meters used for the operation of the welding machines?

c) condition of cable, hoses, connectors etc?

d) condition of control system in mechanised and or automatic welding equipment?

e) condition of thermocouples and other temperature measurement instruments?

f) condition of wire feeders and conduits?

g) is it foreseen taking actions for avoiding the use of defective equipment?

11 WELDING AND RELATED ACTIVITIES

11.1 Production planning

a) Does the manufacturer carry out an adequate production plan compatible with the production and testing facilities to be used in the manufacture of the product?

Does such a plan include at least the following points as relevant:

b) specification of the sequence by which the product shall be manufactured (e.g. as a single part of sub-assemblies and the sequence of subsequent final assembly)?

c) identification of the individual processes required?

d) reference to the appropriate specifications for welding and allied processes?

e) sequence in which the welds are to be made, if applicable?

f) order and timing in which the individual processes are to be performed?

g) specifications for inspection and testing, including the involvement of any independent inspection body?

h) provision for protection from environment conditions (e.g. protection from wind and rain)?

i) item identification of batches, components or parts?

11.2 Welding procedure specification (WPS)

a) Does the manufacturer prepare welding procedure specifications (WPS) in accordance with EN ISO 3834 part 5 or contract specification?

b) Are there arrangements to ensure that the correct WPS's and procedures are used in production?

11.3 Qualification of Welding procedures

a) Are the welding procedures qualified prior to any production welding?

b) Is the method of qualification in accordance with the relevant application standards or as stated in the contract?

c) Are other procedures (e.g. procedure for heat treatment) qualified if required in the relevant applications standard and/or in the contract?

11.4 Work instruction

a) Does the manufacturer use the welding procedure specification directly in the workshop or dedicated work instructions?

b) Are dedicated work instructions (welding procedures) prepared from an approved welding procedure specification?

11.5 Procedures for preparation and control of documents

a) Does the manufacturer maintain procedures for the control of relevant quality documents (e.g. welding procedure specification, welding procedure approval record, welders approval certificate, weld records, NDT and post-weld heat treatment procedures)?

12 WELDING CONSUMABLES

12.1 General

Has the manufacturer specified responsibilities and procedures involved in the control of welding consumables?

12.2 Batch testing

If required in the contract, is batch testing of welding consumables carried out?

12.3 Storage and handling

b) Does the manufacturer implement procedures for storage, handling and use of consumables, which avoid moisture pick-up, oxidation, damage etc?

c) Are these procedures in accordance with the supplier's recommendations, if any?

13 STORAGE OF PARENT MATERIALS

a) Are parent materials stored so that they will not be adversely affected before use?

b) Is the identification maintained during storage?

c) Has the manufacturer written procedures for storing parent materials including bought in items and products provided by the purchases?

14 POST-WELD HEAT TREATMENTS

a) Where required, are post-weld heat treatment procedures compatible with the parent material, welded joint, construction, etc and in accordance with the application standard and/or specified requirements?

b) Does the manufacturer issue adequate records, made during the process, of the post weld heat treatment?

c) Do such records demonstrate that the post weld heat treatment procedure has been followed?

d) Are these records traceable to the particular post weld heat treatment operation?

15 INSPECTION AND TESTING

15.1 General

Is there an inspection schedule as plan for implementing inspection and testing at appropriate stages of the manufacturing process, as required by the contract requirements?

15.2 Inspection and testing before welding

Are the following items checked before the start of welding, when necessary:

a) suitability and validity of welders qualification certificates (see EN ISO 3834 Part 5)?

b) suitability of welding procedure specification (see EN ISO 3834 Part 5)?

c) identity of parent material?

d) identity of welding consumables?

e) joint preparation (shape and dimensions) (see EN 29692 or equivalent code/standards)?

f) fit-up, jigging and tacking?

g) any special welding requirements in welding procedure specification (e.g. preheat, prevention of distortion)?

h) arrangements for any production tests?

i) suitability of working and environmental conditions for welding?

j) suitability and condition of equipment?

15.3 Inspection and testing during welding

Are the following items checked during welding as required by the inspection plan and procedures:

a) essential welding parameters (e.g. welding current, arc voltage, travel speed)?

b) preheating/interpass temperature (see EN ISO 13916 or other equivalent code/standard)

c) cleaning and shape of runs and layers of weld metal?

d) back gouging?

e) welding sequence?

f) correct use and handling control of consumables?

g) control of distortion?

h) any intermediate examination (e.g. checking dimensions)?

15.4 Inspection and testing after welding

Are the following inspections carried out, after welding, when necessary, in accordance with the contract requirements:

a) visual inspection?

b) other non-destructive testing?

c) destructive testing?

d) evaluation of shape and dimensions of the welded construction?

e) evaluation of the results and records of post-weld operations (e.g. post-weld heat treatment)?

15.5 Inspection and test status

Are measures taken as appropriate to indicate the status of inspection and test of the product during manufacture?

16 NON-CONFORMANCE AND CORRECTIVE ACTION

a) Are measures implemented for controlling components or items, which do not conform to specified requirements, in order to prevent their inadvertent use?

b) When repair and/or rectification is undertaken by the manufacturer are appropriate procedures available at repair workstations?

c) When repair and/or rectification is carried out are the items reinspected, tested and examined in accordance with the original requirements?

d) Does the manufacturer have procedures or arrangements to identify and remedy any conditions that could adversely affect the quality of the product or production processes?

17 CALIBRATION AND VALIDATION OF MEASURING, INSPECTION AND TESTING EQUIPMENT

Is all equipment used to assess the required quality of the welded construction suitable, controlled and calibrated or validated at specified intervals?

18 IDENTIFICATION AND TRACEABILITY

a) Where appropriate, is identification maintained throughout the manufacturing process?

b) Where appropriate, is traceability maintained throughout the manufacturing process?

c) Whenever the identification and/or traceability are required, do the arrangements include (when necessary):

d) production plans?

e) routing card?

f) records of weld locations in constructions?

g) weld marking, stamping, labels etc?

h) traceability (for fully mechanised and automatic weld-equipment including welder and welding operator) to specific welds?

i) welder and procedure approvals?

j) non-destructive testing and procedures and personnel?

k) welding consumables (e.g. type, batch or cast numbers)?

l) parent materials (e.g. type, batch)?

m) location of repairs?

n) Is the manufacturer able to use a written procedure for identification and/or traceability when this is required by contract requirements?

19 QUALITY RECORDS

Do the quality records include, according to the contract requirements and/or when necessary, the following:

a) contract/design review?

b) materials certificates?

c) consumables certificates?

d) welding procedure specifications?

e) welding procedure approval tests?

f) welder or welding operator approval certificates?

g) non-destructive testing personnel certificates?

h) heat treatments and procedure specification?

i) non-destructive and destructive testing procedures and reports?

j) dimensional reports?

k) repairs and non-conformity reports?

l) production plan
m) equioment maintenance records
n) calibration and validation of measuring and testing equipment.

Are quality records retained for a minimum period of 5 years in absence of any other specified requirements.

EXEMPLAR 1

REGISTER OF EN ISO 3834ASSESSORS AND EN ISO 3834TECHNICAL EXPERTS

Assessor Number	Assessor Name	Registration Date	Engineering Profile (1)	Quality Profile (2)	Type of Product	Process experience	Materials experience	Confirmation Date		

Note 1: **Insert A, B or C according to the following:**

A for an I/EWE* with at least three years of work experience in the field of welded fabrication
B for an I/EWT* with at least three years of work experience in the field of welded fabrication
C for a person experienced in the field of welding (three years minimum)
To be an EN ISO 3834Technical Expert requires A or B in this column

Note 2: **Insert D or EC according to the following:**

D for a person competent in quality system auditing
E for a person familiar with quality management systems.
A person with a D in this column can be an EN ISO 3834Assessor:in other cases he/she is an EN ISO 3834-2 EN E
Expert

Refer to Part 1 of the Guideline for further explanation of the above

* or equivalent qualification

EXEMPLAR 2

PRELIMINARY INFORMATIVE ENQUIRY

1 GENERAL INFORMATION

Name of the Unit to be assessed.....

Address of the Unit to be assessed .....

Telephone ..... Fax .....

E-mail .....

2 CERTIFICATION ISSUED BY OTHER ORGANISATIONS/BODIES

If yes specify the following:

Type of Certification	Certifying Body	Date of issue	Date of expiry

3 INFORMATION TO SUPPORT APPLICATION FOR ASSESSMENT

3.1 The basic standard for which the certification is requested.

3.2 Description of the manufacturer's organisation structure, with details of the part of the organisation involved in the welding related activities. Functions and number of person shall be indicated.

Function	Total number of persons	Number of persons involved in welding activities

Please provide an organisation chart for the Unit including welding co-ordination (EN ISO 14731) and a description of the job responsibilities of the authorised welding co-ordinator(s).

3.3 Type of manufactured product(s)

.....

.....

3.4 Type of production

• By product ❑ • By mass ❑

3.5 Standards and/or specifications applied

• List of product standards and/or other specifications used

• Standards used for welder approval

.....

• Standards used for welding procedure approval

.....

3.6 Maximum weight and size of product the manufacturer is able to handle

Maximum weight .....

Maximum size .....

3.7 Parent materials welded (reference to the relevant groups of CR 12187 or CR 15608 should be made) and related thickness ranges

Parent material	**Range**		**Parent material**	**Range**

3.8 Welding and allied processes

Welding Processes	Allied Processes
.....	.....
.....	.....

....

3.9 Use of Post Weld Heat Treatment

Yes ❑ No ❑

3.10 Activities generally subcontracted

.....

.....

.....

3.11 Organisation and index of welding co-ordination procedures

.....

.....

.....

4 FORMAL INTERFACES WITH THE CERTIFICATION BODY

Manufacturer Unit reference person and function

.....

Address

.....

Telephone ..... Fax .....

E-mail .....

Date Manufacturer Manager

....

Signed

.....

General Note:
If for any of the above items more space is required, please issue, with the reference to the correct item number, an attached sheet.

EXEMPLAR 3

SCOPE OF ACTIVITY

(to be included with the Certificate)

1 Type of product(s)

.....

2 Product standards(s)

.....

3 Parent materials group(s) (according CR 12187 or CR 15608)

.....

4 Welding and allied process(es)

.....

5 Documents used by the manufacturer (not mentioned above) in relation to confirmity to EN ISO 3834-5

5.1 EN/ISO standards
5.2 Non EN/ISO standards

.....

6 Responsible welding co-ordinator(s)

Name	Qualification
.....	.....
.....	.....
.....	.....
.....	.....

EXEMPLAR 4

Questionnaire

Company

Contact
Road
Place

Questionnaire for the Monitoring of Your Company According to EN ISO 3834
Registration Number:

Dear ,
We have enclosed the questionnaire and are asking you to fill it in and to send it directly to our lead auditor. Please indicate only **those changes with regard to the last monitoring**. On the basis of the results, we will stipulate whether a monitoring audit is necessary at your plant. Please understand that any incomplete information will necessitate a monitoring audit in situ.
Note: Pages 3 and 4 are intended to be filled in by our lead auditor. You can send the questionnaire to our lead auditor using the address printed on Page 3.
Thank you very much for your cooperation.
Date of the last monitoring: ……..

1. Changes in the company organisation
   □ Yes (please enclose a new organisation chart or explain)
   □ No
2. Change with regard to the welding co-ordinator (WC)
   □ Yes (please enclose qualification documents)
   □ No. Name of the supervisor: ……
3. Change in the responsibilities of the WC (in relation to EN ISO 14731)
   □ Yes (please explain)
   □ No
4. Changes with regard to the testing personnel
   □ Yes (please explain who has left or joined the company when and please enclose the qualification documents of the new people)
   □ No …….(Please provide the list (names) of testing personnel.)
5. Change in the number of welders
   □ Yes (please specify the current number and enclose a list of welders with the valid qualification tests)
   □ No Number of welders: …….(Please provide the list (names) of qualified welders.)
6. Current certificates for welders' qualification tests, e.g. according to EN 287; or for operators, e.g. according to EN 1418 (please enclose examples)
7. Change in welding processes
   □ Yes (enclose procedure qualification tests and WPS)
   □ No

8. Change in the range of materials
   □ Yes (please explain)
   □ No
9. Change with regard to heat treatments
   □ Yes (please explain)
   □ No
10. Range of products changed
    □ Yes (please explain)
    □ No
11. Objections and complaints
    □ Yes (internal (in the case of in-house testing) and external (by customers), please explain)
    □ No
12. Change with regard to suppliers of welded components
    □ Yes (please enclose the supplier assessment)
    □ No

I confirm the truthfulness of the above information

_____ _____

Date Management, Signature

Company

Lead Auditor

Road
Place

Recommendation of the Lead Auditor

Criteria to be assessed:

1. Changes in the company organisation
   In the case of fundamental changes (e.g. setting-up of new fields of fabrication by means of welding technology), monitoring audit in situ necessary.
   □ Yes
   □ No
   Remarks:
2. Change with regard to the welding co-ordinator (WC)
   If the WCis changed in relation to the name on the certificate, monitoring audit in situ necessary.
   □ Yes
   □ No
   Remarks:
3. Change in the responsibilities of the WC
   In the case of a fundamental extension to the activities (performance of the tasks according to EN ISO 14731 questionable), monitoring audit in situ necessary.
   □ Yes
   □ No
   Remarks:
4. Changes with regard to the testing personnel
   In the case of fundamental changes, monitoring audit in situ necessary.
   □ Yes
   □ No
   Remarks:
5. Change in the number of welders
   In the case of a fundamental extension to the welding technology activities (increase greater than 25% or 5 welders), monitoring audit in situ necessary.
   □ Yes
   □ No
   Remarks:
6. Current certificates for welders' qualification tests, e.g according to EN 287; or for operators, e.g. according to EN 1418
   If there are no certificates about current welders' qualification tests, monitoring audit in situ necessary.
   □ Yes
   □ No
   Remarks:
7. Change in welding processes
   If new welding technologies are used, monitoring audit in situ necessary.
   □ Yes
   □ No
   Remarks:

8. Change in the range of materials
   If new groups of materials are used, monitoring audit in situ necessary.
   □ Yes
   □ No
   Remarks:

9. Change with regard to heat treatments
   If heat treatments are now carried out in house or in the case of fundamental changes in the technology, monitoring audit in situ necessary.
   □ Yes
   □ No
   Remarks:

10. Range of products changed
    In the case of fundamental changes with regard to the use of fabrication processes by means of welding technology, monitoring audit in situ necessary.
    □ Yes
    □ No
    Remarks:

11. Objections and complaints
    In the case of fundamental customer complaints, monitoring audit in situ necessary.
    □ Yes
    □ No
    Remarks:

12. Change with regard to suppliers of welded components
    If fundamental suppliers are changed, monitoring audit in situ necessary unless an adequate supplier assessment is proven.
    □ Yes
    □ No
    Remarks:

_____ _____

Date Name, Signature

Note: Please return the complete questionnaire including the annexes to ……..