

RAILSAFE

Education, Qualification and Certification

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Structure and Organisation of the Harmonised System for Education, Qualification and Certification of Railway Track Welders

RAILSAFE



RAILSAFE is a LEONARDO DA VINCI
Community Vocational Training Action Programme Project

Terms and definitions:

European Rail Organisation (ERO)

Organisation which operates the education, training, qualification and certification system in Europe (organisation to be assigned or established by the European rail welding community; as long as this organisation has not been established, the European Welding Federation has agreed to act as the European umbrella).

Rail Welding Specialist Group

Group responsible for the maintenance of the harmonised education, training, qualification and certification system in Europe on behalf of the European Rail Organisation. Members of the Group are railway authorities, contractors, process suppliers, training bodies and Authorised National Bodies.

RAILSAFE Authorised National Body (RANB)

Organisation authorised by the European Rail Organisation (ERO), which operates the education, training, qualification and certification system in its country. The railway authority would normally be expected to take the role of the RANB

National Rail Welding Specialist Committee

The body that advises the RANB on the conduct of its affairs in relation to the implementation of the RAILS SAFE education, training, qualification and certification scheme. Members of the Committee are national railway authorities, contractors, process suppliers and training bodies.

Approved Training Body (ATB)

Aluminothermic welder training organisation approved by the RAILS SAFE Authorised National Body (RANB); "training establishment" in the definition of EN 14730-2.

Authorised Examiner (AE)

Person authorised by the RAILS SAFE Authorised National Body to examine knowledge and/or skills of a welder for a Diploma and/or a Certificate.

Process supplier

Company which provides an approved aluminothermic welding process variant accepted in accordance with EN 14730-1 and which is approved by the railway authority to supply consumables and tools for the execution of aluminothermic welds.

Process manual

Manual, referred to and described in EN 14730-1 produced by the process supplier, identifying all the consumable materials and equipment used and the operating method to be followed for all steps of welding. The manual specifies the critical parameters of the welding process variant and their safe bounds

Employer

Company which employs aluminothermic welders.

Contractor

Company which builds and/or repairs railways.

Railway Authority

Either the railway regulator or the owner of a railway infrastructure or the custodian with a delegated responsibility for a railway infrastructure.

Aluminothermic welder

Person who is qualified or certified for the joining of rails by an aluminothermic welding process variant.

Diploma

Lifelong valid document issued to a person having successfully passed an examination after his/her education and training for knowledge and skills.

Certificate

Document with limited validity issued to a Diploma holder showing current knowledge and skills.

Welding process variant

One of a range of methods of application of the aluminothermic welding processes provided by a process supplier

Background

On 1 October 2004 a project has started, under the title RAILS SAFE, with the purpose to develop a non-mandatory harmonised system for education, qualification and certification of railway track welders.

Before introducing RAILS SAFE's structure and organisation, it is useful to be reminded of the original objectives and aims of the project:

RAILSAFE's objectives are:

- to have trained and certified railway track welders available for railway companies to assure the quality and reliability of the railway tracks and thus reducing accidents and downtime caused by welding problems,
- to harmonise welding procedures and to harmonise education, qualification and certification to make exchange of welders for national railway authorities and companies in the European Union possible,
- to assure the quality of and access to continuing vocational education and certification for life-long competences and better employability of railway welders across national borders.

These objectives are to be achieved by continuing education and training and qualification and certification of welders, according to a harmonised European guideline, which has been developed in the RAILS SAFE project.

RAILSAFE's aims are:

- to have a guideline for a harmonised system for education, qualification and certification of railway track welders,
- to have a guideline for specification and approval of welding procedures for track welding in production and for training,
- to have a database of certified railway track welders,
- to have the system verified by pilot courses,
- to have a system to operate the harmonised system,
- to have the results of the project disseminated in Europe.

In order to determine the requirements of the railway authorities and the industry for the education, qualification and certification of railway track welders, draft documents were produced on the performance objectives of welders, on welding procedures, on a database for certified welders and on a system to operate the system.

These draft documents were discussed by 50 railway track welding experts in workshops in Copenhagen, Cambridge, Genova, Hannover and Bratislava.

Although railway authorities and process suppliers were represented in the workshops, they were also asked separately to give their opinion on the draft documents.

During the project a new CEN standard, EN 14730, became available, on the approval of aluminothermic welding processes and on qualification of aluminothermic welders [1].

Part 1 of the standard gives details about the requirements and procedures for assessing and approving a specific aluminothermic welding technique for use on the rail infrastructure. With regard to Part 2 of the standard, although this describes a framework for the qualification of welders, it is not prescriptive in terms of the content of the training or about the details of the examination.

The comments received during the workshops and during the visits to the railway authorities and process suppliers as well as the new standard have led to amended versions of the originally produced documents. The conclusions of the workshops have been reported in [2].

The amended version of the performance objective document has been the basis for development of the guideline for education, qualification and certification [3]. This guideline is complementary to the EN 14730-2 standard, underpins and adds detail and value to it.

The draft guideline for the specification and approval of welding procedures as indicated in the RAILS SAFE project aims did not find favour with half of the experts consulted. These experts thought that Part 1 of the standard, together with the aluminothermic welding 'process manuals' produced by the process

suppliers, were sufficient. Because of this, the draft welding procedure guideline has been reduced to a Practical Test Specification, which is an appendix to the guideline for education, qualification and certification.

However, the other half of the experts thought the guideline on welding procedures useful and it is therefore also published in a new lay-out [4]. A comparison [5] has been made between the standard EN 14730-1 and the RAILS SAFE welding procedure guideline.

Although the need for a central European database was questioned by part of the workshop participants, a database has been developed, not only for certified welders but also for qualified welders, which can be used by authorities, companies and organisations [6].

Rules have been established for the implementation of the RAILS SAFE system [7].

In a European Seminar on 25 January 2007 at TWI in Abington, UK, RAILS SAFE has been presented and has been discussed [8]. The discussions have led to amendments to the guideline and rules.

38 welders in total have participated in pilot courses in Sweden, United Kingdom, Portugal, Germany and in the Netherlands. The pilot courses have given practical information on the use of the RAILS SAFE education, examination and qualification system. The conclusions of the pilot courses have been reported in [9] and have led to amendments in the guideline and rules.

The present report gives a description of the structure and organisation of the RAILS SAFE education, qualification and certification system, which shows how the system is operated. The system is temporarily operated by the European Welding Federation (EWF) until a European Rail Organisation has been assigned or established.

Apart from dissemination through the workshops, the European seminar and the pilot courses, the project results have been disseminated throughout Europe by means of articles in journals, presentations at conferences and meetings, visits to railway authorities, process suppliers and contractors and through the RAILS SAFE website: www.ewf.be/railsafe

References:

- [1] Railway applications - Track - Aluminothermic welding of rails, EN 14730
- [2] Industry requirements for a Harmonised System for Education, Qualification and Certification of Railway Track Welders. Report made after discussions with 50 railway track welding experts from seven different European countries, RAILS SAFE/GUIDE/PU/RI/JB/060113/6
- [3] Minimum Requirements for the Education, Training, Examination, Qualification and Certification of a European Aluminothermic Welder (EAW), Interim Guideline of the European Welding Federation, Prepared by RAILS SAFE, RAILS SAFE/GUIDE/PU/SLV/TB/060227/18
- [4] Rail welding – Aluminothermic welding procedure specification, Interim Document of the European Welding Federation, Prepared by RAILS SAFE, RAILS SAFE/GUIDE/PU/ISQ/JPH/050331/7
- [5] Added value of RAILS SAFE’s “welding procedure specification” when compared with CEN prEN 14730-1 and prEN 14730-2, Interim Document of the European Welding Federation, Prepared by RAILS SAFE, RAILS SAFE/REP/PU/ISQ/JPH/060602/4
- [6] Database of Qualified and certified Railway Track welders, Interim Guideline of the European Welding Federation, Prepared by RAILS SAFE, RAILS SAFE/GUIDE/PU/EWF/IF/070109/6
- [7] Rules for the implementation of RAILS SAFE Guidelines for the education, examination, qualification and certification of European railway track welding and related personnel, Interim Rules of the European Welding Federation, Prepared by RAILS SAFE, RAILS SAFE/RULES/PU/TWI/TJJ/060920/6
- [8] Report of RAILS SAFE European Seminar at TWI on 25 January 2007, RAILS SAFE/REP/PU/TWI/DNS/070423/4
- [9] Summary report on pilot courses, RAILS SAFE/REP/PU/TWI/TJJ/070806/4

Structure and organisation

1 Overall structure and organisation

The European Rail Welding Organisation (to be assigned or established by the European rail welding community – temporarily EWF) applies special rules for RAILS SAFE Authorised National Bodies (RANBs) in each country that wish to implement the rail welder education, training, qualification and certification scheme. The railway authority would normally be expected to take the role of the RANB. The rules require the RANB to establish a National Rail Welding Specialist Committee for this activity with representatives of the national rail industry sector. The representation on this committee would include:

- railway authorities
- rail welding contractors
- the rail welding process suppliers that are active in the country concerned
- rail welder training organisations.

The National Rail Welding Specialist Committee advises the RANB on the conduct of its affairs in relation to the implementation of the RAILS SAFE education, training, qualification and certification scheme.

A RANB assesses and approves Approved Training Bodies (ATBs) and appoints an Examination Board. The Examination Board appoints and supervises Authorised Examiners (AE).

The National Rail Welding Specialist Committee may act as an Examination Board.

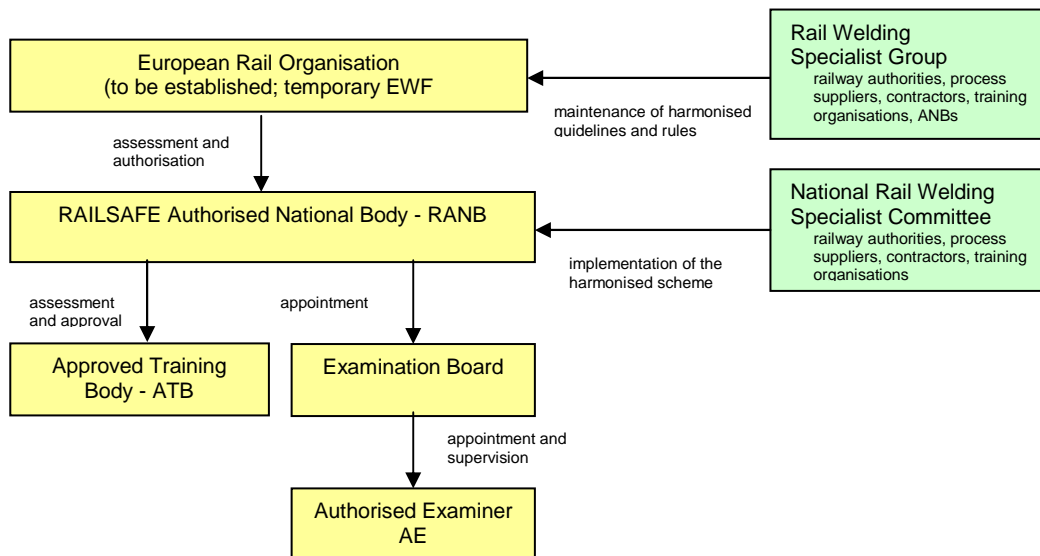


Figure 1 Overall structure of the system

A Rail Welding Specialist Group is established on a European level to maintain the harmonised guidelines and rules. The representation on this group includes:

- railway authorities
- rail welding contractors
- rail welding process suppliers
- rail welding training organisations
- RANBs.

The harmonised system provides for theoretical education and practical training of aluminothermic welders, their examination, issue of a life-long Diploma and Certificates with limited time validity. Qualification, resulting in the issue of a Diploma, requires theoretical education, practical training and theoretical and practical examination.

Certification requires qualification as above plus track welding experience.

The theoretical education and examination for a Diploma is generic and the practical training for a Diploma is process supplier specific. The practical examination for a Diploma is process variant specific. After passing the examinations the welder will receive a generic Diploma valid his/her whole life.

Diploma holders are required to demonstrate a one year period of supervised, documented and satisfactory experience to receive a Certificate, which is process variant specific. This applies to the Certificate of the process variant in which the welder has been trained for the Diploma as well as to additional Certificates in other process variants. To get a certificate in other process variant, the welder must also undergo practical training in that process variant.

Certificates are valid for two years. In order to renew a Certificate for another two-year period, holders are required to demonstrate supervised, documented and satisfactory experience in the process variant for which the certificate was awarded during the period of validity of the certificate.

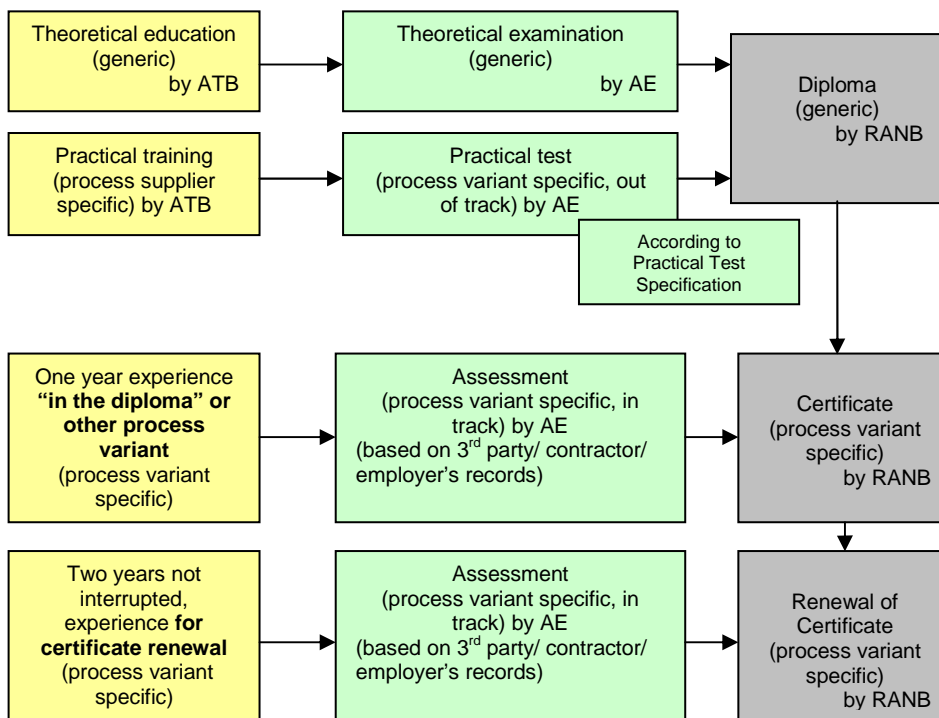


Figure 2 Overall structure of education, training, qualification and certification system

2 Responsibility for education and training for a Diploma

Education and training of aluminothermic welders is by ATBs, approved by the RANB.

3 Scope/content of education and training for a Diploma

Theoretical education and practical training is according to a curriculum Guideline "Minimum Requirements for the Education, Training, Qualification and Certification of a European

Aluminothermic Welder". ATBs must include in the training programme any applicable national requirements defined by the railway authority. As appropriate the training must follow the relevant process manual of the process supplier.

The order of theoretical education and practical training is to the discretion of the ATB.

4 Responsibility for examination for a Diploma

Theoretical and practical examination of welders is by RANB's Authorised Examiners.

The theoretical examination is according the Examination Question Database.

The practical examination is according the Practical Test Specification, which is specific for each aluminothermic process variant/ process supplier.

5 Responsibility for issuing qualification (Diploma)

European Qualification (generic Diploma) is issued under RANB's responsibility.

6 Requirements for Certification

For a Certificate in any process variant the Diploma holder is required to demonstrate a minimum period of one year of supervised, documented and satisfactory experience in that process variant with a minimum of 50 welds per year (subject to circumstances). If the welder is not successful in passing the experience assessment or in case of a process variant which is different from the process variant indicated on the Diploma, an "in-track" practical test is obligatory.

For prolongation of their Certificate after it has been expired, Certificate holders are required to demonstrate a 2 year period of supervised, documented and satisfactory experience with a minimum of 50 welds per year (subject to circumstances) and with no interruption of work longer than a period of 6 months (subject to circumstances). If the welder is not successful in passing the experience assessment, the renewal candidate is then required to repeat the 'in-track' practical test in the process variant concerned.

Evaluation of the supervised, documented and satisfactory experience is by RANB's Authorised Examiners, based on a 3rd party/ contractor/ employer's statement specifying process variant and inspection reports on made (including rejected) welds.

Note: The Certificate is not a Permit to Weld, but railway authorities may use a Certificate as a basis for issuing a Permit to Weld.

7 Responsibility for certification

European Certification (process variant specific Certificate) is issued under RANB's responsibility.

8 Administration of database of qualified and certified welders

Qualified and certified welders are filed in national databases by RANBs.

9 Transition arrangements

Diploma's (with accompanying Certificate) can be issued by RANBs to existing trained, qualified and practising welders under transition arrangements, open for 3 years.

Observations

- 1 This general description of the harmonised system could be part of a future standard or could be referenced in a future revision of the present standard. The curriculum Guideline for education, training, qualification and certification should be a separate document to keep it flexible.
- 2 As long as the European Rail Organisation has not been assigned or established by the European rail welding community as the "umbrella organisation", the European Welding Federation (EWF) will act as such an organisation. EWF runs the current European education, qualification and certification system for conventional welding personnel. Once established, the European Rail Organisation could take over from EWF or could ask EWF to perform the organisational and administrative work on its behalf.
- 3 Although the project outcome will interfere with the complex existing systems for certification and permits to weld, which vary from country to country and contractor to contractor, the system should contain certification, because certification is a mechanism to confirm current competence of welders and is a possible basis for issuing a permit to weld. Certification is an effective way to implement the EU drive for continuing education.
Moreover, during the workshops no comments have been received, which suggested deleting the certification.
- 4 Many countries in Europe do not have a nationally harmonised system for rail welder training. Therefore it is likely that differences will exist in the competence of welders within, as well as across, national boundaries. The RAILS SAFE system simultaneously brings about national and European harmonisation.
- 5 It has taken a considerable amount of work within CEN to reach a consensus on the qualification requirements for aluminothermic welders of railway tracks.
Even so, the current standards do not specify in detail the level of training or competence of welders, they mainly indicate who is responsible for doing what. The outcomes of RAILS SAFE include unified performance objectives for welders, and a guideline on education and training to achieve those objectives, thus providing a European benchmark for effective implementation of the new standards.

European Welding Federation

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