

Development of a Harmonised System for Education, Qualification and Certification of Railway Track Welders

Introduction to RAILS SAFE 2 Arc welding

Summary

The aim of the RAILS SAFE 2 project is to build on the success of the first RAILS SAFE project. Whereas the first project covered the joining of rails by the aluminothermic welding process, this second phase will cover the use of arc welding for joining, repairing and refurbishing rails. Arc welding requires completely different skills, but the competence requirements are just as critical to the reliability of rail tracks, thus a similar approach will be adopted.

As was the case for the first project the main outcomes of this work are: a European harmonised approach to training and qualification which brings the advantage of mobility and employability of welders throughout Europe, a recognisable competence benchmark through certification, structured lifelong learning, underpinning for an emerging European Standard and a support mechanism for the interoperability between national railway systems and to railway safety. This time, however, attempts will be made to ensure that the system of certification complies with the national VET systems in Europe thereby facility transferability throughout Europe and, in some cases, access to public funding.

Five of the partners were also partners in the first RAILS SAFE project: the international research and technology organisation in the UK - TWI, the coordinator of the first RAILS SAFE project - Ir.J.B. van den Brug Raadgevend Ingenieur, the Netherlands railway contractor and employer of welders - VolkerRail, the Swedish Welding Commission (SWC) and the European Welding Federation (EWF). A new partner is the National R&D Institute for Welding and Material Testing in Timisoara, Romania. The project will be managed by TWI. The UK Institute of Rail Welding (IoRW) has agreed to give input to the project.

Together the partners have the necessary expertise and networks to deliver the project objectives. The project will unify a variety of different national approaches to training of railway track welders thereby allowing mobility of welders throughout Europe. A further benefit of the project will be to enable skilled welders from sectors which are in decline to undergo supplementary training in order to transfer into the growing rail sector.

The tangible outcome will be a Guideline for training, qualification and certification, and rules for its implementation, following the same approach as in the first project. The system and its implementation will be tested by pilot courses. The outputs will be disseminated for use by the rail industry in Europe through the partners and the contacts they established during the first project.

The project began in October 2008 and will run for two years.

Background

Safety of rail traffic depends highly on the quality of the tracks, on the welds in the tracks and thus on the skills of the welder. Over the last years a number of accidents and near-accidents have happened. This resulted not only in injury to (and sometimes in death of) passengers, but also in

downtime of the railway service and therefore loss of money. Some of these accidents were due to weld problems.

Problems can also occur as a result of variable weld quality causing welds to be rejected and taken out of service. This, in turn, can result in speed limits and delays.

The railway network throughout Europe is old and it is common knowledge that maintenance has been delayed for financial reasons, especially after the privatisation of the railway network. The railways tracks need overdue maintenance and repair. In rail construction and maintenance, reducing track possession time is a key requirement.

In welding terms, the same problems are experienced equally throughout Europe, like: lack of uniformity of training and testing of welders, lack of common syllabuses and lack of mobility of skilled welders. This is not only true between countries but also within some countries. To set welders to work for other companies or in other countries is often hindered by different procedures and different qualification of welders.

The policy of the European Commission is to revitalise the railways, to promote the interoperability between the separate national railway systems and to improve the safety. (see EC White paper: European Transport Policy for 2010: Time to decide, 2001).

Another policy of the European Commission is to stimulate, through the "Leonardo da Vinci Lifelong Learning Programme", education and training in a life-long learning process to improve employability and to make work across national boundaries possible: free movement of people in the European Union.

The RAILS SAFE project

The European Welding Federation, with national welding institutes as members, has harmonised education, training, qualification and certification of welding personnel in Europe. The EWF has issued 50.000 diplomas over the last ten years. Railway welding was however not part of this scheme. After completion of the first RAILS SAFE project it now is for Aluminothermic welders. Arc welding for joining, repairing and refurbishing rails will be added after the present RAILS SAFE 2 project has been completed

The definition of a certificate is in this context a document showing current competence. It has limited validity in time and is essentially a life-long-valid diploma with a check on knowledge and skills at regular intervals.

The steps leading to certification include – going backwards – qualification of welders (diploma), harmonised (European) examination, education and training according to a harmonised curriculum guideline at approved training establishments. And above all these activities, quality audits on the whole system have to be performed and railway welding parties concerned, such as railway authorities, contractors, equipment and consumable manufacturers, training establishments and welding institutes, have to be involved.

These steps actually address all the problems – to some extent - as mentioned above under "Background".

These steps will be carried out in the present a project: "Development of a Harmonised System for Education, Qualification and Certification of Railway Track Welders", RAILS SAFE 2, on arc welding for joining, repairing and refurbishing rails. The European Commission agreed to partially finance the project under the "Leonardo da Vinci Lifelong Learning Programme". The project has started on 1 October 2008 and will take two years to complete.

The project aims for well-trained and qualified welders. An education, training, qualification and certification system for railway track welders will be developed, using the best of existing national material, but with a fresh look on quality and safety.

The objectives of the project are:

- to harmonise education, qualification and certification to make exchange of welders for national railway authorities and companies in the European Union possible and
- 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.

The harmonisation will comprise the performance objectives and curriculum for education and training (not the training material), examination, qualification (European diploma) and certification (European certificate).

Getting RAILS SAFE 2 started

During the preparation of the RAILS SAFE project proposal, CEN TC 256 has been developing a standard on railway track welding procedures and on training of welders: "Railway applications - Track — Restoration of rails by electric arc welding", prEN 15594. The RAILS SAFE 2 system will be designed to provide valuable underpinning material for the draft standard.

The first activity in the project is to establish industry requirements, in the form of performance objectives, as a basis for the development of a guideline for education, qualification and certification of arc welders for joining, repairing and refurbishing rails

Performance objectives are statements which identify the specific knowledge and skills the person should gain and display as a result of his/her education and training.

TWI, SWC and ISIM will host workshops in respectively the United Kingdom, Sweden and Romania, to get industry consensus on the performance objectives; workshop participants will be railway authorities, contractors, equipment and consumable manufacturers, research and consultancy organisations, training establishments, welding institutes and welders. In addition railway authorities, contractors, equipment and consumable manufacturers and EWF, not present in the workshops, will be asked to comment on the draft performance objectives.

An Advisory Group will be established, with the initial task of identifying needs (performance objectives) and then to provide continuous feedback on the deliverables of the project. The Advisory Group will be comprised of invited representatives of the target groups: European railway organisations, national railway authorities, contractors, welding equipment and consumable companies, training establishments, welding institutes, bodies who qualify and certify the welders and arc welders for joining, repairing and refurbishing rails from a range of European countries.

To embed the RAILS SAFE system in the European railway community, an umbrella organisation on railway welding in Europe will be sought. Promising contacts have been made.