



Institute of Rail Welding (IoRW) - ten years on

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Background

Welding is a very widely used set of processes which is key to the cost-effective manufacture and maintenance of safe and reliable high integrity plant and infrastructure items. If welding is carried out incorrectly the consequences can be severe: from delays and contractual difficulties in milder cases, to catastrophic failure and loss of life in extreme cases. The way to avoid problems is to exercise strict control of all the processes involved (design; materials selection; production planning; welding process, equipment and consumables selection; welding production; inspection and testing) and to ensure that people involved in the whole chain of events, not just the welders, have the necessary competence. These controls are necessary because it is generally not possible to guarantee the quality of the final weld by inspection and testing.

Welding of railway tracks is no exception and, in fact, has a number of technological differences from 'conventional' welding which lead to the need for even more care and attention. In order to achieve the required hardness and strength, rail steels contain relatively large quantities of alloying elements, particularly carbon. However, generally speaking, the higher the level of carbon, the more difficult it is to avoid weld cracking and brittle zones in the weld area. Furthermore, some of the welding processes used, for example, aluminothermic welding, are not normally found in 'conventional' welding applications.



Because of these technological difficulties and because of the somewhat unusual welding processes, the people involved in rail welding have tended not to integrate with the 'conventional' welding community. As a result there was no professional 'home' for them in which they could exchange experiences, develop ideas for improvements, etc. Such people existed in a wide range of companies: infrastructure managers, contractors, welding equipment and consumable suppliers, rail manufacturers, training organisations, and research and technology organisations.

Formation of the IoRW



The original concept of the IoRW arose following an evaluation study carried out by The Welding Institute (TWI), the international welding research, technology and professional organisation based in Cambridge, for Network Rail in 2001. This study revealed that there was considerable variability in the quality of rail welder training provision in the UK. This led to the idea of creating an inclusive, professional body which could, among other things, develop appropriate criteria to ensure uniformity of rail welder training. As a result the IoRW was established in 2001 by TWI and Network Rail and formally launched in April 2002. Over 200 people attended the launch event held at The Royal Society in London and the new IoRW was off to a flying start!

What is the IoRW?

The IoRW's mission is to provide a focus for individuals and organisations involved in rail welding and to facilitate the adoption of best practice. In this context 'rail welding' means the technology and practice of track welding, joining, inspection and allied processes; and it applies to urban tramways and metros as well as to main lines.

IoRW is a corporate membership organisation and is funded (on a non-profit basis) mainly from membership subscriptions. It is administered by the Professional Division of The Welding Institute on behalf of a Management Committee representing the members: a range of organisations with a business and technical interest in rail welding. The current members are:

Network Rail
Balfour Beatty Rail
Tube Lines Ltd
BOC Ltd
Carillion Rail
Tata Steel
TWI Ltd
Lincoln Electric (UK) Ltd
Lloyd-Sersa (IE) Ltd
Babcock Rail
Metronet Rail
London Underground
ESAB Group (UK) Ltd
Progress Rail
SkyBlue
Volker Rail
Infrastructure Training Services



The current chairman is Brian Whitney, Principal Engineer (Track), Track Technology Team, Network Rail;

and the vice-chairman is Bob Sawdon, Rails & Welding Engineer, Balfour Beatty Rail Technologies



In achieving its mission to act as a focus for those involved in rail welding, the IoRW:

- Provides regular information to members regarding rail welding, including technical seminars, business briefings, a newsletter *Welding Lines*, and a website (www.iorw.org).
- Promotes the advancement of the technology of rail welding.
- Promotes professionalism, competent control and best practice management of rail welding operations at all levels.
- Encourages training and qualification and continuing professional development at all levels.

Achievements of IoRW - the highlights



Technical Seminars. These are held twice a year at different venues around the country. They have been extremely popular and in May 2011, the 19th IoRW Technical Seminar was held at the Derby Conference Centre. Over the years, they have covered a variety of topics such as strategic initiatives, welding equipment developments to inspection and testing developments and have attracted audiences of up to 100 people.

Welding Lines. The IoRW newsletter is issued three times a year and the next issue will be number 33. It aims to appeal to a wide readership: from welding practitioners through to welding engineers and managers.



Training. In the early days the main focus was on developing and implementing criteria for rail welder training organisations and in establishing training curricula and materials. However, after Network Rail took training back in house, there has been less for the IoRW to do. Currently effort is directed towards establishing a Diploma in Rail Welding aimed at new people coming into the industry and at existing people looking to develop their careers.

Two rail welder training organisations currently boast the IoRW seal of approval: Carillion Rail and Infrastructure Training Services.

Website (www.iorw.org). As well as being a promotional tool, the site provides members with a comprehensive source of technical information on rail welding and related subjects. Members have exclusive access to: presentations from IoRW seminars; all the articles from Welding Lines; summaries of technical articles on rail welding gleaned from the world's welding press; current news on rail business and technology extracted from the national press; a technical enquiry service and a recruitment service.

Projects. The IoRW has provided valuable UK input to a number of EU funded projects. The most notable of these was RAILS SAFE - a two phase project aimed at developing a harmonised system for the training and certification of rail welders in Europe. Further information may be found at www.ewf.be/railsafe.



In conclusion....

The IoRW has demonstrably fulfilled its original aim of creating a professional 'home' for the rail welding community and it has maintained its appeal through some very significant changes in the industry over the past 10 years.

It is difficult to predict what the next 10 years might bring but the IoRW stands ready to meet the challenges that lie ahead. One thing is for sure - the industry will be continuing to rely on welding for many, many years to come!