

Boosting the quality of welding personnel – a best practice from China

The manufacturing sector is undergoing a massive change, with the recently coined term Industry 4.0 as the harbinger of the changes that are sweeping through the industry, with profound and long-lasting impact in the competitiveness of companies and countries alike as the focus moves to higher value and advanced manufacturing, with talent shortage and skills needing to improve to respond to those needs. This is also mentioned in recent Global Manufacturing Competitiveness Index by Deloitte, which highlights the relevance of policy, investment and innovation for company and country level competitiveness. Furthermore, on the specifics of talent and qualification, the aging of engineers and manufacturing workforce, without appropriate knowledge transfer, is exacerbating a skills shortage in developed and developing nations alike. As the largest manufacturing nation since 2010, China is also poised to feel the impact from those changes, and its organizations are already looking into that challenge. The aforementioned Index forecasts that China, Germany, United States and Japan will continue being the world's manufacturing powerhouses between now and 2020, given their strong performance and focus on manufacturing overall.

“Manufacturing competitiveness, increasingly propelled by advanced technologies, is converging the digital and physical worlds, within and beyond the factory to both customers and suppliers, creating a highly responsive, innovative, and competitive global manufacturing landscape,” says Craig Giffi, a leader in Deloitte US Consumer & Industrial Products Industry group and co-author of the report. And Welding plays a pivotal role in ensuring the long-lasting competitiveness of companies and countries alike. The Harmonized qualification system developed by the European Federation of Welding, Joining and Cutting and the International Institute of Welding – International Authorised Body is a key competitive advantage for those willing to pursue leading-edge technologies to compete on the global markets. It provides an open international cooperation platform and open talent system, establishing the groundwork for cooperation and win-win and innovative development.

China on the spotlight for stellar performance on qualified engineers – The Chinese Welding Training and Qualification Committee case study (CANB)

One of the key components of manufacturing 4.0 is the ability to leverage leading-edge materials to reduce costs, weight, and provide additional functional capabilities to the goods produced. This is the field where advanced welding excels, and for which there is a need for professionals and qualifications capable of addressing these industry needs. Given its preeminent position as a leader in worldwide manufacturing, China has placed an emphasis on quickly developing these qualification systems, given the international development of China's economy, an existing cooperation project between China and Germany, the support of government and the industry, as well as the industry-wide participation and support, key for the success of the long term vision and trends around sustainability.

The Chinese Welding Training and Qualification Committee (CANB) is the national organisation authorised by the International Institute of Welding – International Authorisation Body (IIW-IAB) to implement an international harmonised qualification system in China since 2000, issuing diplomas recognised by IIW-IAB members. The engagement with IIW-IAB comes at a juncture in time where there is a growing need to have certified processes and professionals to compete in international markets. The CANB currently covers all provinces except Tibet in China and including Hong Kong, Macao and Taiwan.

Candidates passing the examination can get the following diplomas:

- International Welding Engineer (IWE)
- International Welding Technologist (IWT)
- International Welding Specialist (IWS)
- International Welding Practitioner (IWP)
- International Welder (IW)
- International Welding Inspection Personnel (IWIP)

Given the success of this first initiative, in early 2011 it was created the Chinese Authorised National Body for Company Certification (CANBCC), founded by CANB, which is a unique organisation conducting IIW Manufacturer Certification Scheme in China.

According to Yinglong Xie, the Chief executive of CANB, **“the main advantages of these qualifications for Chinese welding professionals are the understanding and application of international standards, the development of manufacturing knowledge and a qualification that is widely recognized”**.

Mr. Yinglong Xie added that engaging with leading-edge IIW-IAB allows CANB to participate in **“a very valuable and demonstrative international body. The organization contributes to elevate the level of worldwide welding technology personnel and for the application of international welding technology standards. It has great influence on the promotion of global welding manufacture technology and improvement of product quality. Also, by creating an effective international cooperation platform and open talent system, it allows for cooperation and win-win and innovative development”**.

The most sought after certification was the International Welding Engineer, in close alignment with industry’s requirements and with CANB predicting an uptick of International Welding Specialists in the future. This expected trend is based on current industry requirements.

IIW-IAB Qualification System in China has a bright future ahead

The Chinese National Authorization Body is profoundly committed to the qualification of professionals and the industry moving forward, with a strong focus on providing a positive contribution to the development of IIW-IAB. Again, according to Mr. Yinglong Xie, **“IIW-IAB is a very**

valuable and demonstrative international body. It makes very great contributions to promote the level of worldwide welding technology personnel and application of international welding technology standards. It has a deep-rooted influence on the advancement of global welding manufacture technology contributing to meaningful improvements on product quality”.

“Promote the IIW-IAB system actively, move forward the implementation of IIW-IAB system by joint participation of the whole industry, ensure strong government support, do a good job at showing relevance to companies and, more globally, to get more and more engagement with industry and enterprises,” is the key takeaways that Mr. Yinglong Xie would give to any new member interested in developing their own ANB.

Trainees share their experience with the system

CANB has already awarded over 10,000 diplomas, and the rate is not slowing down, which gives a good sense of the interest professionals in China have on the qualification, as well as of the interest from companies on hiring professionals with appropriate internationally recognised qualifications to stake their competences in an increasingly competitive market. As one student has pointed out “companies need the international qualifications in order to cooperate with partners, also to improve the professional technology for international markets. And, on a more personal note, it allows a professional to be recognized by a world-class welding skill and management platform”.

This qualification allows a professional to expand the professional welding knowledge in order to better communicate with international customers, to have further access to the most advanced technology and to reap the benefits from a global community with other teachers and engineers. Lastly, the system provides a unique access to improvements on the management level. And, given the evolving needs and changes on the market, this is just the beginning of a journey to increase skills and keep up with the challenges posed by an ever-evolving technology.