

INTERNATIONAL QUALIFICATION SYSTEM FOR TRAINING OF WELDING PERSONNEL IN UKRAINE

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Stages of formation of the qualification system of Ukraine for training of welding personnel, which is harmonised with educational programs of the International Institute of Welding (IIW) and European Welding Federation (EWF), are described. The unified qualification system in Ukraine is recognised by the European and International accreditation bodies. The 10 years' experience in training of domestic specialists is available. Over 200 specialists were educated following different IIW programs for a number of leading enterprises. An important task for the future is to form the harmonised certification (attestation) system for welding personnel from welder to engineer, which should be unified for all the IIW member countries. It is planned to develop the system of compulsory advanced training for all levels of the personnel, based on the one- or two-week courses with periodicity of 2–3 years. The Training Centre of the E.O. Paton Electric Welding Institute has all possibilities to widen the list of the programs for periodic advanced training of technicians and engineers. 5 Tables, 1 Figure.

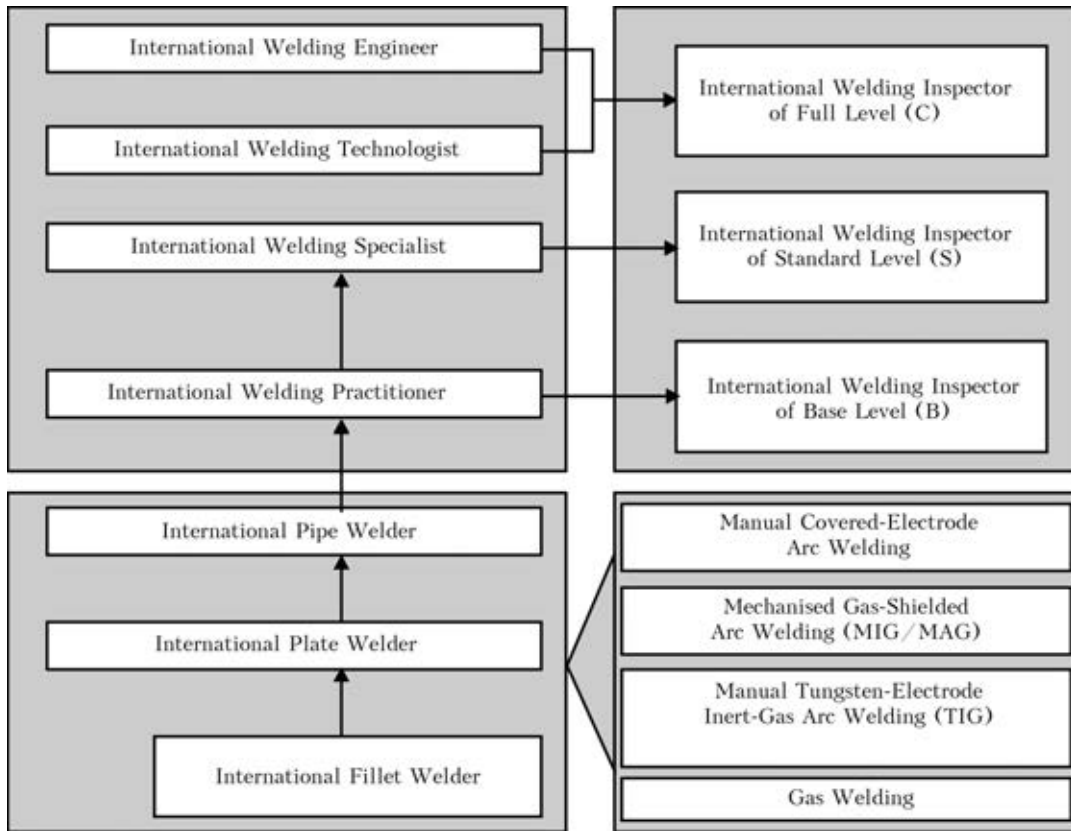
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The key task of modern welding production is increase in competitiveness of products, which can be achieved due to technological advantages of a manufacturer. They are determined, primarily, by the presence of the qualified personnel, rather than by the advanced equipment and materials available at the competitors'. Professional training of the personnel capable of implementing advantages of modern welding technologies has certain peculiarities related to specific features of the welding process and high requirements to welding products.

These peculiarities are covered by the educational programs developed by the International Institute of Welding (IIW) and European Welding Federation (EWF), which formed the unified harmonised system for training of all categories of the personnel, starting from skilled welding operators and ending with certified engineers. The quantity of countries joining this harmonised international system for training of welding personnel is growing every year. Up to now it has been used in 37 countries: Australia, Austria, England, Belgium, Bulgaria, Brazil, Hungary, Germany, Holland, Denmark, India, Iran, Spain, Italy, Canada, China, Nigeria, Norway, Poland, Portugal, Russia, Romania, Singapore, Serbia, Slovakia, Slovenia, USA, Thailand, Ukraine, Finland, France, Croatia, Czechia, Switzerland, Sweden, South Africa, and Japan.

Owing to the use of the unified educational programs and the centralised system for monitoring of organisation and conducting of the qualification exams, these countries mutually recognise diplomas, certificates and licences issued by the authorised national bodies (ANB). They are recognised also in other countries-IIW members, which includes more than 50 countries. The unified qualification system makes it possible to determine conditions for the guaranteed level of quality of manufacturing of the welded structures independently of a country where they are manufactured. The qualification system is recognised by the European and international accreditation bodies, as it corresponds in full to the international standards of the ISO 3834 series (implemented as harmonised national standards of Ukraine – DSTU ISO 3834) specifying requirements to the quality of welding.

The new versions of standards ISO 3834:2005 «Requirements to the Quality of Fusion Welding of Metallic Materials» and ISO 14731:2006 «Coordination of Welding Operations. Tasks and Functions» (enforced as a harmonised national standard of Ukraine – DSTU ISO 14731) specify requirements to the welding personnel of different qualification levels. International Welding Engineer (IWE), International Welding Technologist (IWT) and International Welding Specialist (IWS) are recommended as personnel to perform the functions of coordination of welding operations. Inspection of welding, as specified in standard ISO 3834:2005 (Part 5), is



Qualification system for training and re-training of welding personnel

within the competence of International Welding Inspector Personnel (IWIP).

The first domestic specialists with these qualifications in Ukraine were trained 10 years ago. In 1998, a group of welding engineers of Ukraine passed re-training following the EWF programs «European Welding Engineer». Organisation of these courses became possible owing to participation of the German Welding Society (SLV), having the corresponding accreditation of EWF, i.e. being one of ANBs, the functions of which include organisation of the harmonised international system for training of welding personnel in their countries. Ukraine also joined this system in 2002, obtaining the corresponding accreditation of IIW for organisation of training of specialists in all of the above four international qualifications, plus International Welding Practitioner (IWP) and International Welder (IW). The ANB functions in Ukraine are performed by the Inter-Industry Training and Attestation Centre (IITAC) of the E.O. Paton Electric Welding Institute of the NAS of Ukraine. In addition to Ukraine, Russia also has such accreditation.

Therefore, in Ukraine, along with the national qualification system for training of welding personnel, also the international one is in effect, which is in full correspondence to requirements of standard ISO 3834:2005.

The IIW-EWF qualification system is in a category of post-diploma education. In this connection, the conditions of access to education that include requirements to the level of education are specified for each category of the approved qualifications. Requirements to the conditions of access to the IIW-EWF training courses in different countries are adjusted based on the effective national professional education systems. The education access conditions for Ukraine are given in the Tables.

As of November 2008, over 150 specialists received training following different IIW programs. These are representatives of the Dnepropetrovsk Steelwork Plant, Zaporozhstal, Krayan, Zaporozhkran, Kremenchug Steel Casting Works, Kryukov Car Building Plant, Lugansk Pipe Works, Lukoil, Motor-Sich, Novokramatorsk Machine Building Works, Stirol, Ukrstalkonstruksiya, Kharkov Car-Repair Plant and many others. Among them were also the citizens of Algeria, Germany, Israel, Iran, Kazakhstan, Russia, Uzbekistan and France.

Training of International Welding Inspectors is of special importance for quality assurance in welding production. In 2008, IITAC of the E.O. Paton Electric Welding Institute trained the first five specialists of this level for the Kryukov Car Building Plant. Partially, training was perfor-



International Welding Engineer (IWE)

Complete education course (440 h)	Shortened education course (340 h)	Short education course (120 h)
Diploma of master, engineer or bachelor in mechanics, electrical engineering or metallurgy	Diploma of master, engineer or bachelor in welding	Diploma of master, engineer or bachelor in welding, and working for the last four years as welding engineer

International Welding Technologist (IWT)

Complete education course (340 h)	Shortened education course (270 h)	Short education course (100 h)
Diploma of bachelor or technician in mechanics, electrical engineering or metallurgy	Diploma of bachelor or technician (junior specialist) in welding	Diploma of bachelor or technician in welding, and working for the last four years as welding technologist

International Welding Specialist (IWS)

Complete education course (230 h)	Shortened education course (200 h)	Short education course (170 h)
Technical education, and working for the last two years in industry	Diploma of technician in welding, and working for the last two years in industry	Diploma of bachelor, technician or instructor in welding, and working for the last three years at a post corresponding to IWS

International Welding Practitioner (IWP)

Complete education course (146 h)	Short education course (32 h)
Certificate of welder, and working for the last two years in welding production	Certificate of welder, and working for the last three years in welding production at a post corresponding to IWP

International Welding Inspector (IWIP)

Qualification	Complete education course	Short education course
International Welding Inspector of full level (IWI-C)	Diploma of bachelor in mechanics, electric engineering or metallurgy (course – 220 h)	Diploma of master, engineer or bachelor in welding, and working for the last three years in welding production (course – 100 h)
International Welding Inspector of standard level (IWI-S)	Technical education, and working for the last two years in industry (course – 160 h)	Diploma of bachelor or technician, and working for the last two years in welding production (course – 70 h)
International Welding Inspector of base level (IWI-B)	Vocational education (course – 110 h)	Certificate of inspector of welding operations, and working for the last two years in welding production (course – 50 h)

med in the territory of the Plant without discontinuing work.

The next important task initiated by IIW is formation of the harmonised system, unified for all the IIW member countries, for certification (attestation) of welding personnel from welder to engineer, similar to that in effect at EWF. Also, it is suggested developing the system for compulsory advanced training of welding personnel of all the levels, based on the one- or two-

week courses, which every specialist should take once in two-three years. By now IITAC of the E.O. Paton Electric Welding Institute has every possibility for widening the list of the proposed programs for periodic further training of technical and engineering staff involved in welding production, as well as for rendering services on their certification.

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