



Newsletter

European Federation for Welding Joining and Cutting

SPRING • 1996 • 2

Editorial

The Green Paper on Innovation recently published by the European Union analyses, among other aspects, the needs in education and training in Europe. At some point in the text the following can be read:

« The White Paper on Education and Training, "Teaching and Learning: Towards the Knowledge-based Society", follows on from the White Paper on Growth, Competitiveness and Employment, which stressed the importance for Europe of intangible investment, particularly in education and research. This investment in knowledge plays an essential role in employment, competitiveness and social cohesion. The Cannes European Council noted in its conclusion the Commission's intention to submit a White Paper by the end of the year and stressed that "training and apprenticeship policies, which are fundamental for improving employment and competitiveness, must be strengthened, especially continuing training".

There are two major issues at stake: first, immediate action is required to meet our current needs for education and training. Secondly, we must prepare for the future by adopting a combined approach in which both the Member States and the 'European Union may invest their efforts, each within its sphere of competence. The White Paper 'Towards the Knowledge-based Society' takes the view that in today's modern Europe the three essentials of social integration, enhanced employability and personal fulfilment are not incompatible, should not be brought into conflict and should, on the contrary, be made to dovetail.

The new opportunities open to individuals will require each person to make an effort to adapt and, above all, to build up his or her own qualification by combining elements of basic know-how acquired from various sources.

The one of the principal objectives for implementation on a European scale in 1996 is: to encourage people to acquire new skills. Example of recommend action: a trans-European project for know-how accreditation (validation of know-how units, personal skill cards);

These objectives provide a clear framework for the debate the Commission intends to launch by presenting this White Paper in 1996, dubbed by the European Parliament and the Council as the European Year of Lifelong Learning».

The training scheme of EWF, presented in this Newsletter represents an european action on-line with the need for skill improvement identified in Europe, described above.

For more details please contact the EWF Secretariat:

Estrada Nacional 249 - Km 3
Taguspark - Leião
Apartado 119 . P - 2781 OEIRAS CODEX, Portugal
Tel.:351.1.42113518 Fax:351.1.4228122



. Are welders like professionals trained for one trick only?

. No! Welders have a comprehensive education and training according to the harmonized european EWF system.

QUALITY ASSURANCE AND EDUCATION

It can be stated and proven by experience that everybody - from the simplest worker to the highest educated engineer - does his job as well as he can and knows. Nobody makes mistakes on purpose! (if we exclude minor factors such as laziness etc.). If, however, from an outside viewpoint somebody makes a mistake, he is not guilty in the strong sense, because he doesn't know that it is a mistake. It is merely a result of a lack of education and training. This consideration is from a psychological point of view extremely useful when encountering such a situation. At the same time this very clearly shows the need for the effectiveness of education and training. In fact it is much cheaper to educate all coworkers of a company to the highest possible level and as required, than to have to repair defects later or to regulate a serious failure. In respect of a weld, we can definitely state that a correct weld does not necessarily cost more than a bad one!

On the other hand, quality assurance systems certified according to the ISO 9000 or EN 29000 series do not guarantee a high quality of the goods produced. The system only assures the uniformity of the production of today for the

future and leads perhaps to less deviations from quality. The initial analysis of a production system does reveal of course possible sources of error, but once the quality assurance system is implemented the production may lose flexibility - in a positive as well as in a negative sense. In a very detailed and sophisticated quality assurance system the individual does no longer need to think because everything is specified. Is it really possible to specify in advance every detailed problem which may occur during production? - Definitely not!

This leads us to conclude that we definitely need a synthesis of excellent education and training and a not too detailed quality assurance system. This is in agreement with the fact that too detailed quality assurance systems tend to increase the costs drastically. It seems to be necessary to increase the role of job competence - attainable through education and training and experience - for instance in the EN 29000 series. The highest possible education of all persons involved in production is indispensable when setting up any quality management system. Harmonization of education and training does therefore play a decisive role in the Europe of tomorrow.

PRACTICAL EDUCATION AND TRAINING

The European Welding Practitioner (EWP) is a highly skilled welder with industrial experience as a welder, practically and theoretically trained in the EWP course to be assistant of an EWS in industry. He is able to read drawings and is well informed about production methods. He usually is foreman of a group of welders in the workshop or on site. Figure 1 gives a detailed description of the education and training of EWP in relation to the training of welders.

The EWP in one or more processes is a top welder. During the course he gets additional theoretical knowledge, so as to be prepared for the function of a foreman assisting an EWS.

For the education and training of welders a harmonized scheme consisting of several guidelines is also elaborated. At first glance this seems to be in competition with the

European Standard EN 287. But it really isn't, because EN 287 was devised for the purpose of testing and certifying a welder for a certain job. The range of welding conditions of a welder test is very limited. It would therefore be possible to train a welder just for these test pieces only, but such welders would be called 'circus horses', as they are only able to weld these test pieces without having a general range of skill and knowledge. So the EN 287 was definitely not designed to provide an education program with different tasks and steps in which welders can acquire a high level of skill in welding. However, at the same time and for the sake of flexibility in production, industry needs welders with a more comprehensive capability rather than 'circus horses'. Therefore, Committee 2 of the EWF developed an education program which allows the welder to be trained to different levels of skill leading to definite EN 287 qualifications.

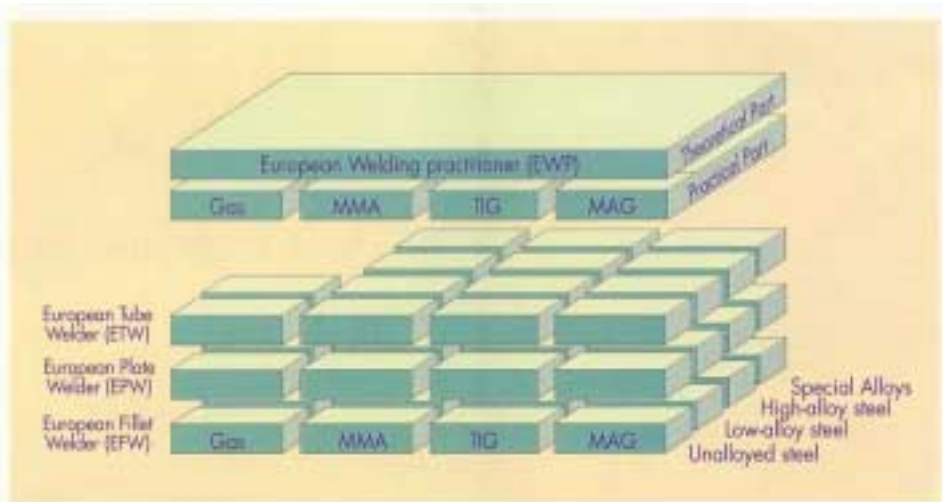


Fig. 1 - Education and Training of European Welders and Welding Practitioners

Figure 1 shows that welders are trained in a special process and using a special group of materials to three levels, defined as Fillet Welder, Plate Welder and Tube Welder.

This program produces welders well versed in a wide range of EN 287 qualifications in case production demands it. Upon successfully completing a certain level, the welders get two different types of certificates, an EWF diploma and an EN 287 certificate. The EWF diploma of Fillet, Plate or Tube Welder is valid for the whole life, showing that

The guideline for the European education and training of Manual Metal Arc Welders and MIG/MAG Welders have been devised, evaluated and formulated by members of the EWF Committee for Education and Training. They are designed to provide a harmonized scheme for the comprehensive education and training of MMA and MIG/MAG Welders. The series of the European Standard EN 287 provide a scheme for welder tests to evaluate and certify the capability of a welder for a limited range of welding conditions. It serves

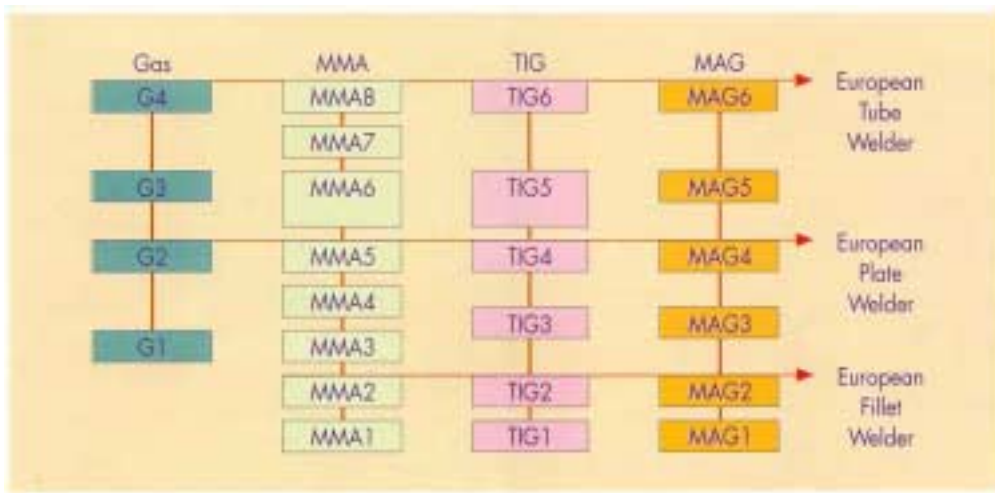


Fig. 2 - Education and Training of European Welders

the welder at the time of examination was trained practically and theoretically to a comprehensive knowledge and skill. The EN 287 certificates do in turn certify his skill for a limited period of time according to the standard.

The training program is set up by modules which can be entered at any level, if the corresponding skill and knowledge are demonstrated. The modules also contain theoretical education. Figure 2 shows, as an example, the general education and training of European Welders.

as quality assurance for a specific job, yet it does not provide an education program based on experience, in which steps and sequence a high skill in welding can be acquired. At the same time industry needs welders with a more comprehensive capability for the sake of flexibility in production.

As indicated below, the guideline for MMA Welders Training provide a combination of high skill, assessed by tests of increasing difficulty including approved tests at the end of the relevant modules and of the necessary theoretical background assessed

by theoretical examinations. Welders successfully completing this program achieve a wide range of EN 287 approvals.

The training program consists of 8 modules E1 to E8 leading to three levels of capability:

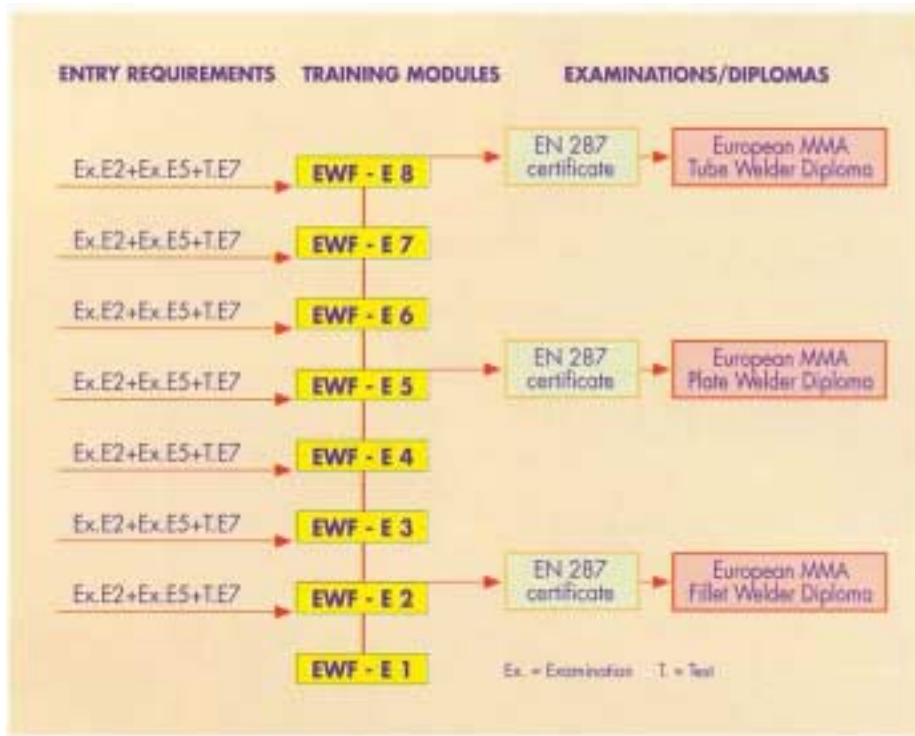


Fig. 3 - Training Modules for European MMA Welders

These modules consisting of practical training and theoretical instruction are described in detail in the guideline. The guideline covers the minimum requirements for education and training, in terms of training pieces, agreed upon by all national welding societies within EWF, as well as for theoretical lessons in terms of themes, keywords and times devoted to both practical training and theoretical education. Section II of this guideline covers the examination procedures leading to the three levels of skill, including the corresponding approvals according to EN 287, depending on the material used for training. It is to be noted that EWF diplomas of European Fillet Welder, European Plate

Welder and European Tube Welder are valid for the whole life, whereas EN 287 certificates have a restricted time of validity according to the standards.

A similar guideline was developed for the training of MIG/MAG Welders. The training programme comprises M1 to M6 leading to three levels of capability (Fig. 4). The guidelines for training of European TIG Welders and European GAS Welders are being developed in Committee 2.

The guidelines will be revised periodically by the Committee so as to take into account any changes which may affect the "state of the art".

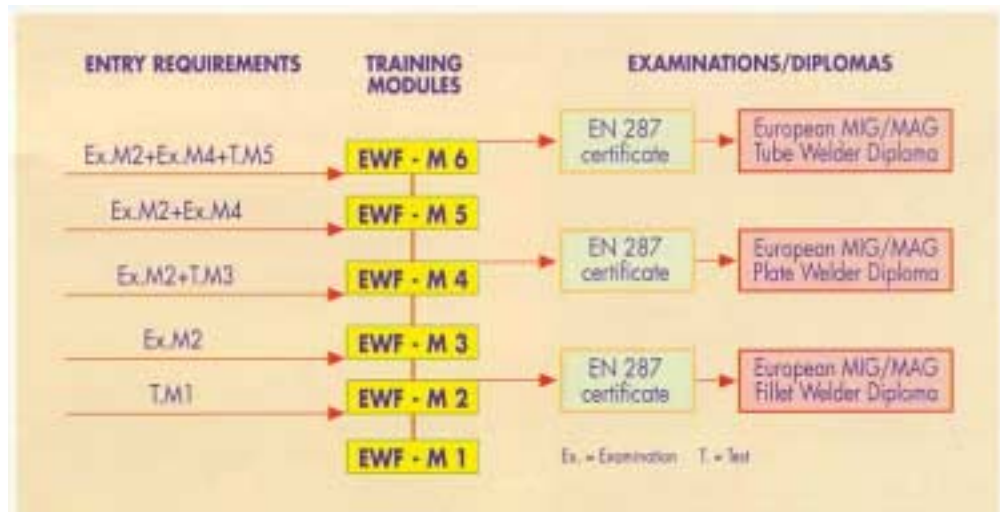


Fig. 4 - Training Modules for European MIG/MAG Welders

ETCETERA

EUROJOIN 3 will take place in Switzerland, in April 1998.

The theme of the conference is:

WELDING TECHNOLOGY AT WORK

Dialogue between scientists, managers and experts and the areas to address include

1. Design

Overviews, fields of application, expert systems

For designers and engineers, general managers, buyers

2. Economics

Processes, handling, materials

For plant managers, experts, welders

3. Quality

Standards, fitness for purpose, test methods

For inspectors, inspection personnel.

Committee 4 started its activity in 1995 under the chairmanship of Dr. Mauro Scasso. It has adopted the name - Harmonization of the assessment and certification of companies according to EN 729 quality requirements and its terms of reference are:

1. To produce interpretation of the EN 729 standards in relation to the manufacturer's products and processes used in production
2. To define requirements for ANB's assessors and assessments.

The documents concerning the interpretations for fabricators intending to comply with EWF's Certification Scheme for EN 729 Part 2, 3 and 4 have been approved by Committee 4 of EWF.

A new document concerning the Regulation for Certification according to EN 729 EWF Certification Scheme is under preparation.

The EOTC Agreement Group for Welding, Joining, Cutting and Surfacing based on a proposal from the EWF has been approved and is due to start its activity on January 1st, 1997.

The current scope of the Agreement Group will cover the implementation of the established harmonised guidelines for the training and certification of European Welding Engineers, Technologists and Specialists which support the requirements for Welding Coordination personnel identified in EN 719: Welding Coordination; Tasks and Responsibilities. The objective will be to ensure that welding personnel at these levels in the EU and EFTA region are trained precisely according to the common guidelines and examined in a uniform way so that those gaining a certificate in any Member State will have achieved the same minimum standard.



<p>REGISTERED ADDRESS</p> <p>European Welding Federation c/o Institut Beige de la Soudure rue des Drapiers 21 B - 1050 BRUXELLES</p> <p>EFW SECRETARIAT c/o Instituto de Soldadura e Qualidade Taguspark Aparlado 119 P - 2781 OEIRAS Codex Tel: 351.1.4211351. Fax: 3511.4228122 Email: ewf@isq.pt</p> <p>MEMBERS</p> <p>AUSTRIA Schweisstechnische Zentralanstalt Arsenal OBJ 207 A - 1030 VIENNA Tel (43) 1.79826260. Fax: (43) 1.798262628</p> <p>BELGIUM Institut Beige de la Soudure Sint-Pietersnieuwstraat 41 B - 9000 GENT Tel (32) 92.643238. Fax: (32) 92.237326</p> <p>DENMARK FORCE INSTITUTTERNE Park Aile 345 DK - 2005 BRONDBY Tel (45) 43968600. Fax (45) 43.962636</p> <p>FINLAND Suomen Hitsausteknillinen Yhdistys v.y. The Welding Society of Finland Makelankatu 36 A 2 SF - 00510 HELSINKI Tel (358) 0.7732199. Fax: (358) 0.7732661</p> <p>FRANCE Institut de Soudure ZI - Paris Nord II BP 50362 F - 95942 ROISSY CDG Cedex Tel (33) 1.49903602. Fax: (33)-1.49903650/36</p> <p>GERMANY Deutscher Verband für Schweißtechnik Aachener Strasse 172 D - 40223 DUSSELDORF Tel: (49) 21115910. Fax: (49) 211.1591200</p> <p>ICELAND IceTec Technological Institute of Iceland</p>	<p>Keldnaholt, 112 Reykjavik Tel: (354) 5877000 Fax: (354) 5877409</p> <p>IRELAND FORBAIRT Glasnevin IRL- Dublin 9 Tel: (353) 1.8082539 Fax: (353) 1.8082046</p> <p>ITALY Istituto Italiano della Saldatura Lungo Bisagno Iстриa 15 I-GENOVA Tel (39) 10.83411 . Fax: (39) 10.8367780</p> <p>LUXEMBOURG Commission Nationale de la Soudure 29, Rue Aldringen L-2926 LUXEMBOURG Tel (352) 4785232 . Fax: (352) 474116</p> <p>NETHERLANDS NIL-Netherlands Institute of Welding Krimkade 20 NL- 2251 KA VOORSCHOTEN Tel: (31) 715611211' Fax (31) 715.611426</p> <p>NORWAY Norwegian Welding Society Oscargt 20 N - 0306 OSLO 3 Tel: (47)22596600 Fax: (47)22596733</p> <p>PORTUGAL Instituto de Soldadura e Qualidade TagusPark Apartado 119 P - 2781 OEIRAS Codex Tel: (351)1.4228100 . Fax: (351)14228125</p> <p>SPAIN CESOL - Asociación Española de Soldadura c/Maria de Molina, 62 - 8ª A E - 28006 MADRID Tel: (34)15624912/13 . Fax: (34)1.4110370</p> <p>SWEDEN Swedish Welding Commission Box 5073 S - 10242 STOCHOLM Tel: (46)87912900 . Fax: (46)86799404</p> <p>SWITZERLAND Schweizerischer Verein für Schweißtechnik St Alban-Rheinweg 222 CH - 4052 BASEL Tel: (41)61.3178484 . Fax: (41)61.3178480</p>	<p>UNITED KINGDOM TWI - The Welding Institute Abington Hall - Abington UK - CAMBRIDGE CB1 6AL Tel (44)1223001162. Fax: (44)1223.002588</p> <p>OBSERVERS</p> <p>BULGARIA Technical University Sofia Dept. for Materials Science and Technology 1756 SOFIA Tel (359)26363671 . Fax: (359)2.628659</p> <p>CROATIA Croatian Welding Society Hrvatsko društvo za tehniku zavarivanja Ivana Lucica 1 41000 ZAGREB Tel (385)1.512689. Fax: (385)1.519822</p> <p>HUNGARY Scientific Society of Mechanical Engineers P.O.B.433 H - 1371 BUDAPEST Tel: (36)1.1666046 Fax: (36)12020252/1666808</p> <p>POLAND Instytut Spawalnictwa ul BI Czesława 16/18 PL-44-101 GLIWICE Tel: (48)32310011 . Fax: (48)32 314652</p> <p>ROMANIA ASR - Asociatia de Sudura din Romania Romanian Welding Society Bv. Mihai Viteazul nr. 30 R - 1900 TIMISOARA Tel (40)56.191835. Fax: (40)56.192797</p> <p>SLOVAKIA Vyskumny OstBY Zvaracsky Welding Research Institute Racianska 71 83259 BRATISLAVA Tel (427)253500. Fax: (427)254867</p> <p>SLOVENIA Zveza Drustev Varilno Tehniko Slovenije KARLOVSKA 3/1 1000 LJUBLJANA Tel: (386)61221631 . Fax: (386)61349282</p>
---	--	--

Authorised National Bodies - With the exception of Iceland and Ireland, the EWF system for training of welding personnel was established and authorised in all member countries.

Some observer countries have expressed their intention to apply for audits for their ANB's approval. Poland and Slovakia have, in 1995, submitted the necessary documentation to Committee 2.

The reports prepared by the Chief Executives of the ANBs have shown that until the end of 1995 the following EWF diplomas have been awarded:

- European Welding Engineer 8 786
- European Welding Technologist 1511
- European Welding Specialist 5331
- European Welding Practitioner 50
- European Welding Inspector 532