

EWF

European Welding Federation

Harmonised International Qualification System *“A best practice case”*

March 26 – 27 / Thessaloniki, Greece



Not Possible

“Would you like one of these?”



“Not possible, if Welding is not properly done!”

www.ferrari.com

- We like to say that the most important welds



Welding Failures

Welding can go wrong...



“Liberty Ships”

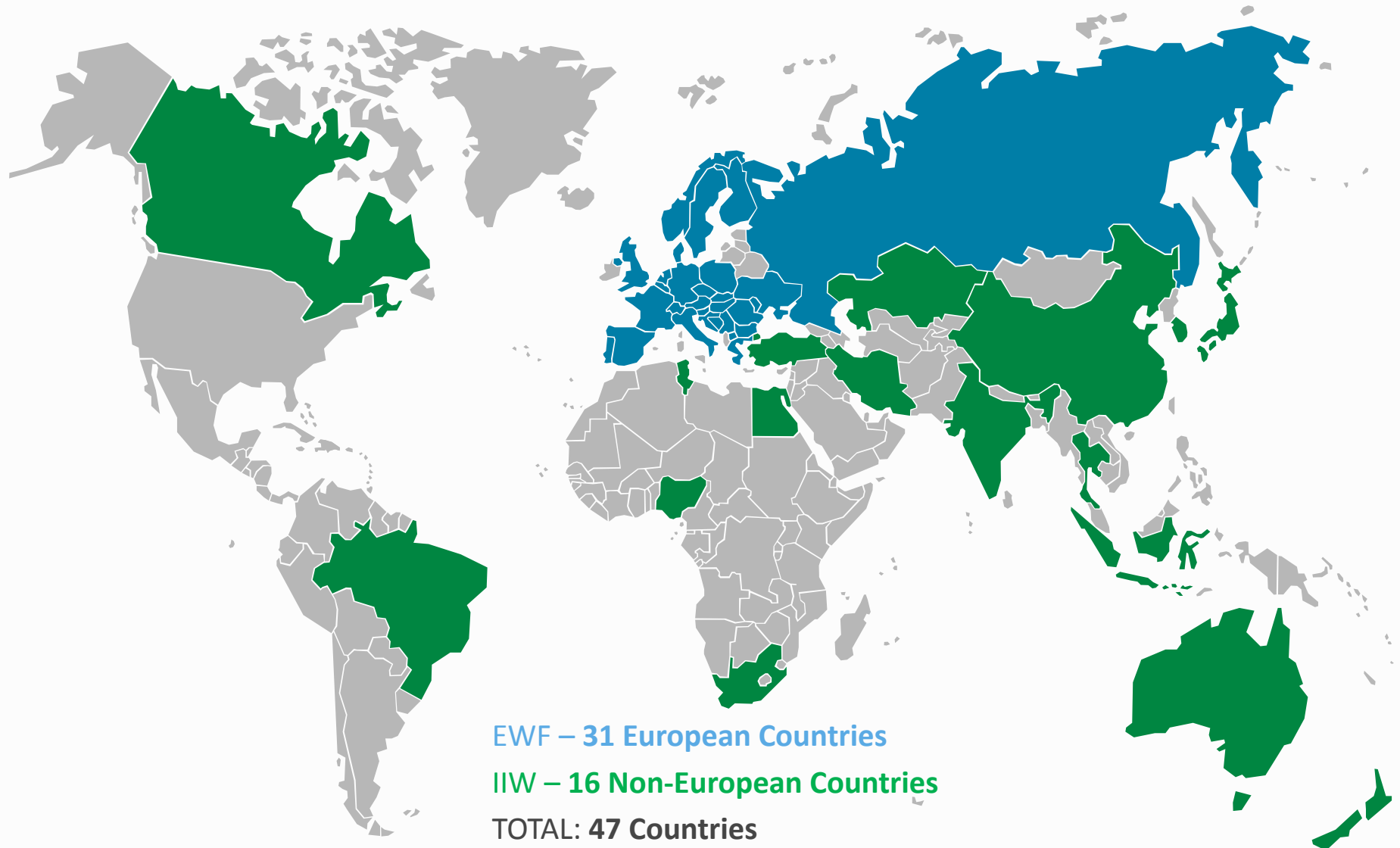
- More than 2500 fabricated;
- 200 or more lost due to brittle fractures in welds;
- More than 100 deaths.



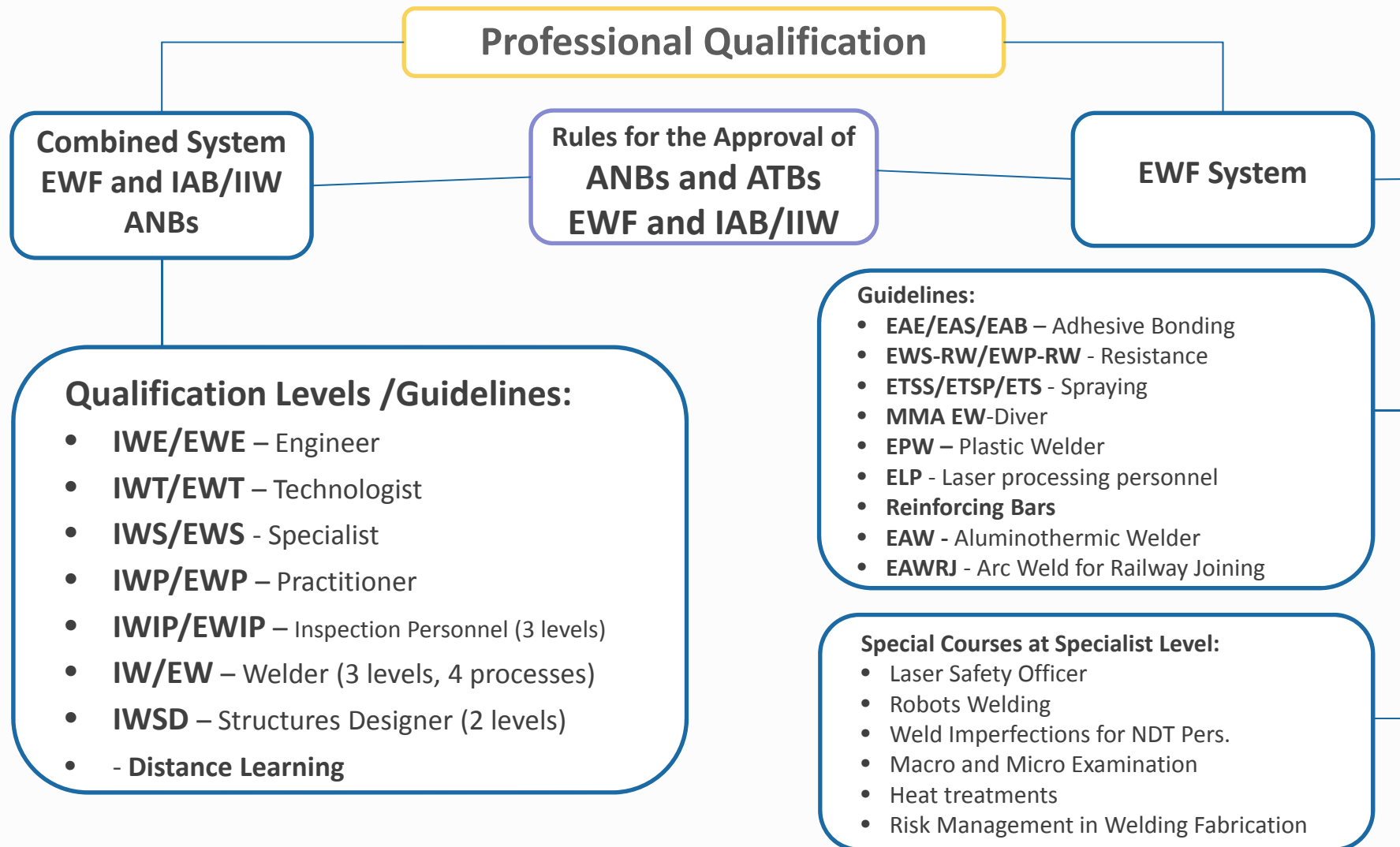
“Ramsgate ferry walkway”

Fatigue cracking caused a passenger walkway to collapse sending six people trying to board a ferry plunging 10m to their deaths. Seven were injured

Members



Guidelines



Quality System

Rules 416 - *Rules for the implementation of EWF Guidelines for the education, examination and qualification of welding personnel*

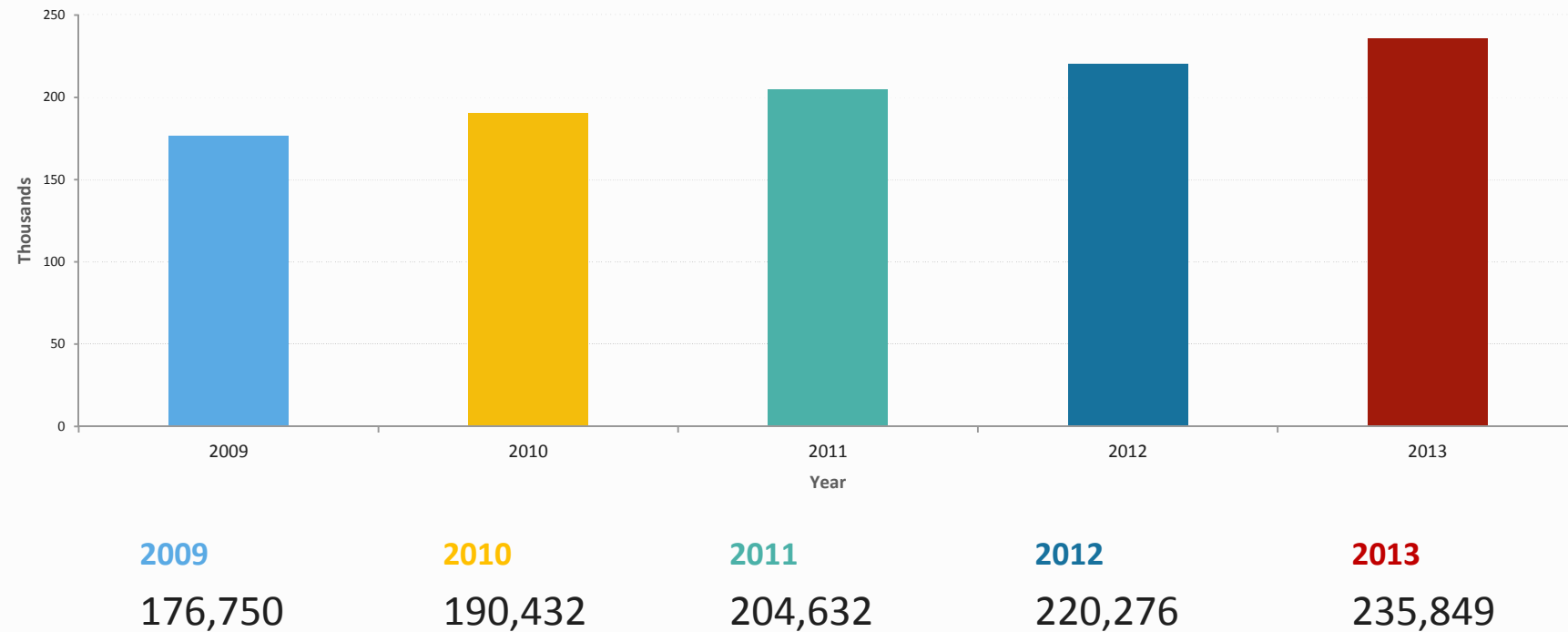
Operational Procedures (in total 22)

-Examples:

- **OP2** – *Recruitment, Training and Authorisation of Assessors*
- **OP3** – *ANB/ANBCC Assessment, Surveillance and Reporting Procedure*
- **OP14** – *Standard Requirements for Practical and Theoretical Education and Training of Personnel established according to EWF Guidelines in which the parent languages of teachers/examiners and Students are different*
- **OP17** – *Harmonised Examination*

Diplomas

We have seen a steady **increase in diplomas**





EQF

Mapping the IIW/EFW Harmonized Training and Qualification System to the levels of the European/International Qualification Framework				
IIW/EFW harmonised training programme, including entry requirement for each where applicable	EQF descriptors			Target recognition (EQF level after awarding IIW/EFW Diploma)
	Described as theoretical or factual (Note 1)	Described as cognitive and practical (Note 1)	Described in terms of responsibility and autonomy (Note 1)	
European/International Welding Engineer (entry requirement: EHEA ('Bologna') 1st cycle, EQF Level 6)	364 learning outcomes (Note 2) from 438 hours postgraduate training after achieving EQF Level 6 – see generic descriptors and examples below: Carry out a critical assessment of theory, principals and applicability of welding and related technologies Explain fully the principles of fracture mechanics.			EQF Level 6 or 7 (Note 3)
European/International Welding Technologist (entry requirement: EHEA Short Cycle, EQF Level 5)	351 learning outcomes (Note 4) from 338 hours of training after achieving EQF Level 5 – see generic descriptors and examples below: Explain the elements of cost associated with welding. Explain metallurgical and weldability aspects involved when joining dissimilar materials.			EQF Level 5 or 6
European/International Welding Specialist (entry requirement: EQF Level 4)	288 learning outcomes (Note 5) from 227 hours of training after achieving EQF Level 4 – see generic descriptors and examples below: Describe the design of welded joints in accordance with given details. Recognise the effects of imperfection size, morphology and position on structural integrity.			EQF Level 5
European/International Welding Practitioner (entry requirement: EQF Level 3)	180 learning outcomes (Note 6) from 140 hours of training after achieving EWF Level 3 – see generic descriptors and examples below: Outline the relationship between the welding procedure and mechanical properties. Recognise the advantages and disadvantages of different types of welds in relation to static loading.			EQF Level 4
European/International Pipe Welder one material, using one welding process.	101-116 learning outcomes, from 50-52 hours of theoretical training and 440 hours of practical training, outlined below: Outline common problems when using welding to join pipes, tubes and/or plates in a variety of combinations, geometries and positions and when			EQF Level 4

EQF

Alignment of EWF Level's in EQF

EWF/IIW	UK	PT	BG	NL	FI	CZ	DE
I/EWE	5?		6?	6		6?	6/7
I/EWT	5?		5?	4		5?	6
I/EWS	4?		4?	2/3	5	4?	6
I/EWP			3?	1		3?	
I/ETW	4	2	4	1	4	4?	
I/EPW	3	2	4	1	4	4?	
I/EFW	3	2	3	1	4	3?	

Projects



Learning Outcomes



Credit Points



EWF – EUROPEAN WELDING FEDERATION

EWF-IAB-089r4-12 – Part I

5 Theoretical education

5.1 Module A

The module A provides theoretical education to the level of the International/European Fillet Welder. The matters to be dealt with and the recommended hours devoted to them are listed below.

A	Items for the theoretical education	teaching hours recommended
A.1	Using electricity for arc welding	(2h)

Objective:

Know the principle of arc welding.

Scope:

- Basics of electricity
- Nature of the electric arc
- The arc as heat source
- Arc power
- Basic terminology for welds. (e.g.: run, layer, top, root, penetration)
- Welding processes (MMA, MIG/MAG, TIG)
- Welding consumables

A.2 Welding equipment

Objective:

Know the operating principles of welding equipment for arc welding.

Scope:

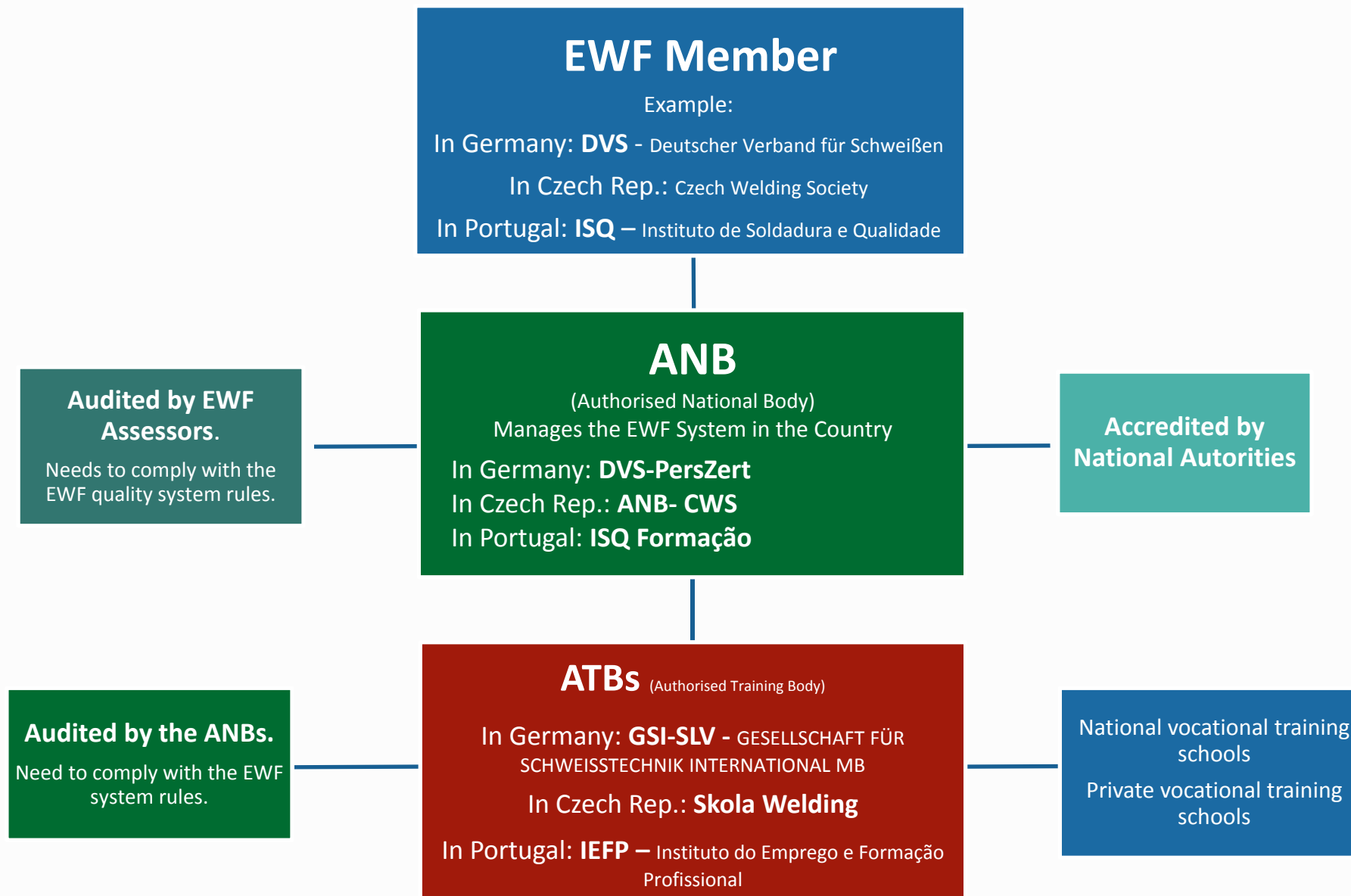
- Distribution of electricity; mains supply
- Converting mains to welding power; welding power source
- Transformers; use of AC
- Rectifiers for DC
- Open circuit and arc voltage; welding current
- Type of welding current and polarity
- Duty cycle
- Shielding gas supply
- Welding parameters

Expected result:

1. Describe the major components of welding equipment and their function.
2. Describe polarity and change of polarity.
3. Name the essential parameters for arc welding.

Scheme

12



Conclusion

- 20 Years of experience in international qualification of personnel for the manufacturing industries.
- Harmonised qualification system from project management to workshop level
- Harmonised qualification system used in 46 countries.
- Harmonised qualification system referred in CEN and ISO Standards.
- Success driven by recognition of “quality” of the EWFSystem by stakeholders
- Harmonised qualification system based in training guidelines
- Quality assurance system based on:
 - Rules for accreditation bodies
 - Rules for training bodies
 - Training of assessors
 - Examination Procedures
- Experience to be benchmarked to other professions.

Video





Thank you for your attention