



**RESEARCH | TECHNOLOGY | EDUCATION**

## **IN FOCUS**

**Welding Qualification in the DVS  
Companies – Procedures – Personnel**

# The technical-scientific collaboration in the DVS

As a technical-scientific association the DVS is fully committed to joining technology. To that end DVS initiates and supports research activities for example, captures and documents the latest state-of-the-art technology and ensures that training and development programs offered by the DVS meet current requirements. This close network of research, technology and education is the core element of the technical-scientific collaboration work in the DVS. With this interdisciplinary approach, the association guarantees that its diverse work results are always based on current knowledge and are compatible with each other.

An impressive example of this successful work philosophy is the DVS technical code, consisting of more than 500 DVS technical bulletins and guidelines. The DVS technical code also sets high training standards and comparable qualifications in training and ongoing training, creating the basis for the highest level of uniform national and international acceptance and procedures.

The results of the DVS work are reflected in DVS events and are supported by DVS Media GmbH inter for example in specialist magazines, specialist books and other publications and made accessible to the professional world.

The booklet “In Focus” presents specific examples to illustrate the practical results of the scientific and technical community work in the DVS and invites you to participate in the various activities in the DVS. Each booklet is devoted to one topic and shows how the entire business location Germany benefits from the close linking in the DVS of research, technology and education to the respective industry.

Dipl.-Ing. Jens Jerzembeck  
Head of Research and Technology



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# Welding Qualification: Companies – Procedures – Personnel

The qualification of companies, procedures and personnel ensures the competitiveness of companies. The knowledge of specialist and managerial staff is indispensable through processes, materials and tools for creativity and innovation – this applies to research and development as well as to production. Well-trained employees along the entire value-added chain contribute with their experience and knowledge to profitably and the implementation of new technologies or processes for the company. Good qualifications are also a key prerequisite for employees to participate in working and professional life. Qualifications also support further development and maintenance of a persons ability to adapt to the ever-changing workplace. The company qualifies itself and its production processes as a technically adept company through their qualified specialists and managers and the equipping of high-quality workplaces.

In the special field of “Welding Technology”, standards (guidelines of DVS and norms), regulate the qualifications of companies and their employees as well as the joining technology and products used both nationally and internationally. These are subject to constant development and adaptation. The DVS – German Welding Society is responsible for the continuous cascading of current standards to the welding companies and the recognised DVS educational institutions are responsible to provide support to the companies as competent partners. In the training and ongoing training of welding and testing personnel, the welding technology training facilities act as local contacts and are divided into Schweißtechnische Kursstätten (SK), Schweißtechnische Lehranstalten (SL) and Schweißtechnische Lehr- und Versuchsanstalten (SLV). This extensive network of DVS-approved educational institutions supports the qualification of companies and their procedures and products. In particular, the SLs and SLVs help with their laboratory equipment and, if necessary, with an accredited test laboratory.

## **Dr.-Ing. Helmut Nies,**

Head of Quality Assurance at the  
GSI – Gesellschaft für Schweißtechnik International mbH

DVS has the particular task of helping to help shape standardisation in all technical fields of application in both national and international bodies, thereby creating competitive conditions for the German economy in international competition. In the committees, the DVS draws on the experience of its employees and, of course, a large circle of experts from member companies.

Specifically, the DVS and the recognised DVS education facilities provide the following services nationwide:

- Qualification of joining and testing personnel by training, testing and certification in the accredited DVS-PersZert system
- Provide consulting services to companies in the establishment of management systems according to recognised technical codes (e.g. ISO 9001, SCC, ISO 3834, EN 1090-1, EN 15085)
- Development of joining processes and their qualification according to international standards (process tests)
- Testing, monitoring and certification of construction products
- Execution of non-destructive and destructive tests on products (e.g. materials, welded components) in accredited test laboratories

This publication provides a comprehensive overview of the range of services offered by the DVS and its facilities, the Schweißtechnischen Kursstätten, the Schweißtechnischen Lehranstalten and the Schweißtechnischen Lehr- und Versuchsanstalten, as well as the qualification in welding technology.



# Technology in the DVS



## The Technical Committee (AfT)

Considering the currently more than 250 established joining processes, the technical-scientific collaboration work in the DVS can and must be systematic. This is guaranteed by the Technical Committee, which has more than 200 work councils. The AfT brings together more than 2,300 experts from business, academia, organisations and corporations who work together to capture and continually advance the state of the art. The fact that the DVS with this bundled expertise is also acknowledged on the international stage as a confident and competent partner in all assembly engineering issues is clear.

DVS is a major contributor to the international joining technology network through its involvement in the International Institute of

Welding (IIW) and the EWF – European Federation for Welding, Joining and Cutting. The work results originating from the AfT are published as DVS technical bulletins and guidelines.

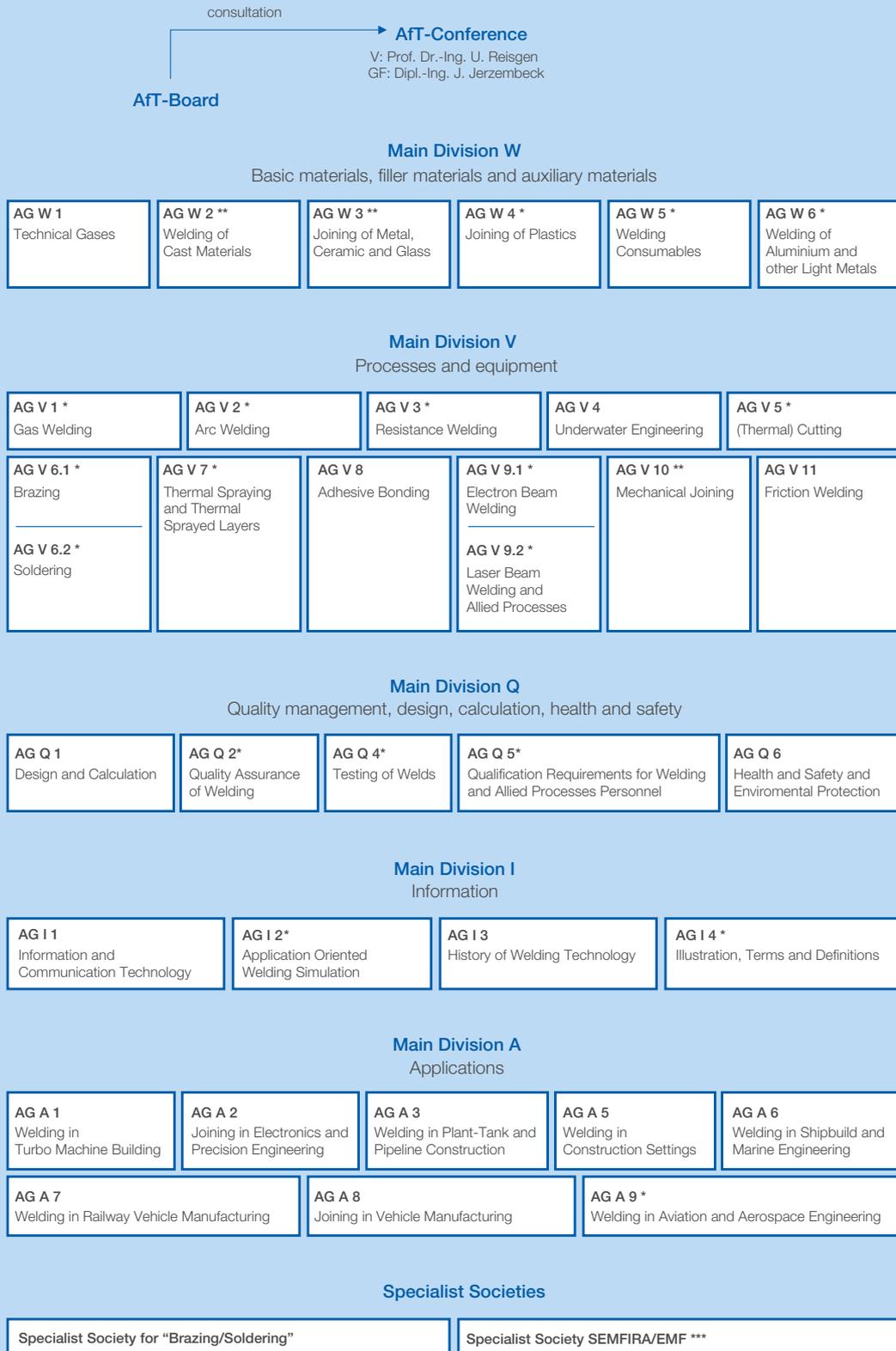
At the national level, the AfT works very closely with the Normenausschuss Schweißen und verwandte Verfahren (NAS) des DIN e. V., in particular in the numerous community committees. The constructive cooperation with NAS enables optimum coordination of the DVS technical code with the normative requirements. The DVS technical code provides valuable application notes for practical application.



DVS members benefit from free access to the DVS technical code under [www.dvs-regelwerk.de](http://www.dvs-regelwerk.de). All the DVS technical bulletins and guidelines are available electronically.



## Structure of the Technical Committee (Aft)



AG: Working Group, \* Joint Working Group with NAS (Standardisation Committee Welding and Allied Processes of DIN e. V.), \*\* Joint Working Group with other Societies, \*\*\*SEMFIRA = Safety in ElectroMagnetic Fields, EMF = ElectroMagnetic Fields.

### Working Group Q 2 “Quality Assurance of Welding”

In both the private and professional environment consumers want to use products that are free of hazards. This basic requirement is based on the Product Safety Act (ProdSG), which applies to all products. The principle does not matter whether the object is a simple handrail or an aircraft. To avoid hazards a risk analysis is always performed, which concentrates either on the product itself or where an error may occur in production that can also lead to failure of the product.

Joining technology, particularly welding, is used in the manufacture of many different products. The specialist welding operation must be capable to ensure process reliability and therefore consistent product quality of the products.

There are extensive technical codes that apply to welding technology, such as DVS technical bulletins and guidelines, national and international standards and other regulations which are used for quality assurance. The continuous further development of the technical codes is performed by specialists from industry

#### Certification (or approval)

The requirement on joining vary wildly depending on the product range (steel, power plant, rail vehicle or pipeline construction, etc.). The implementing technical codes (Steel construction: EN 1090; Rail vehicle: EN 15085; Pressure vessel: EN 13445 or AD 2000 etc.) the fields are to be regarded independently. In the area of quality assurance, the execution regulations then fall back on comprehensive common technical codes (ISO 3834ff.) – the conceptuality of the quality requirement can be found here.

The requirements regarding the quality of a product consist of characteristics such as suitability, defined and prerequisite requirements as well as customer requirements. Quality management is an important method for ensuring that all of the requirements are met. ISO 9001 “Quality management systems

and trade as well as from research and development facilities with the aim of always keeping the technical code documents up to date with the latest technology. The Working Group (AG) in DVS responsible for this task is the Q 2 “Quality assurance of welding”, which is at the same time a joint committee with Working Committee 04 of the Standards Committee for Welding and Allied Processes in DIN e. V. (NAS NA 092-00-04 AA). The body also deals with quality assurance in welding, including content for the safety of products. This provides the user with a comprehensive technical code that describes the requirements for operations, product groups, processes or personnel. The technical code includes welding procedures, process tests, quality requirements and assessment groups, or the execution of welded joints, including recommendations for welding metallic materials.

In the following, the link between the legal requirements and the technical codes is demonstrated and described, and the consequences for the operation, the joining technology and the personnel are given.

– requirements” represents a general possibility for the certification of operations, regardless of area and product.

For the “Welding Qualification” (specialised welding company), the welding process is the main feature of the quality requirements of a management or safety system. For this purpose, the ISO 9000 “Quality management systems – Fundamentals and vocabulary” means that the “process” is defined as a “set of related or mutually influencing activities that uses inputs to achieve an intended result.” A process whereby the conformity of the achieved result cannot be validated easily or in economic terms is often referred to as a “special process”. Welding is such a “special process”!



DVS ZERT GmbH offers certification services for companies and products:

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Source: ©Truefelpix / Fotolia.com

The ISO 9000 standard states that quality assurance is part of quality management. ISO 9001 remains unspecific and is a general guideline for all areas for the qualification of management systems in companies/operations. For welding as a “special process”, quality requirements are defined in the series of standards ISO 3834 part 1 to part 6 “Quality requirements for fusion

welding of metallic materials”. The ISO 3834 series of standards can be applied to the qualification of welding specialist companies independently of ISO 9001. However, this standard does not constitute a standard for quality management systems, e.g. as is the case with ISO 9001.

### Why company certification or approval?

A company certification or approval may be necessary or useful for a company for various reasons. In principle, the certification/approval of a company is the proof that this company is competent in the relevant field and rightly bears the title “specialist company”. In the area of welding technology, such a proof of competence is regulated by approval according to ISO 3834ff.

For the customer or the consumer this approval is a quality criterion that a “specialist welding operation” has the appropriate competence. In the event of company certification or approval, the company therefore implements a measure that establishes confidence in its customers.

### General legislation – Non-regulated area

Anyone who places products on the market on a commercial basis is subject to general legislation (colloquially: “Non-regulated area”). This includes the Civil Code (BGB), the Product Liability Act (ProdHaftG), etc., which define the needs for a lasting and uniform regulation within a community. From the legal system a general diligence or safety obligation is required for all kinds of activities. This diligence was defined in 1903 by the Reichsgericht in Leipzig as follows: “It is an obligation to act – or omit activities – with the purpose of avoiding or decreasing preventable dangers for users or third parties”.

Furthermore, the manufacturer is under the burden of proving, in the event of a defective product, that all processes can be verified to prove that the manufacturer is not at fault. The manufacturer can fulfil its obligations by applying the “generally accepted rules of technology”, such as a certification/approval according to ISO 3834ff as “specialist welding operation”. However, it is the manufacturer’s own responsibility to take appropriate measures.

### Special legal regulations – Legally regulated area

For a manufacturer for whom its products are subject to special legal regulations (colloquially: “legally regulated area”) or special delivery agreements (delivery specifications), approval according to the ISO 3834 series of standards may be obligatory. Whether comprehensive, standardised or elementary quality requirements are necessary depends on the product and the

respective legal regulations or delivery agreements (delivery specifications).

The DVS and the recognised DVS educational institutions assist companies in the development of a quality management system or a quality assurance system with the necessary requirements.

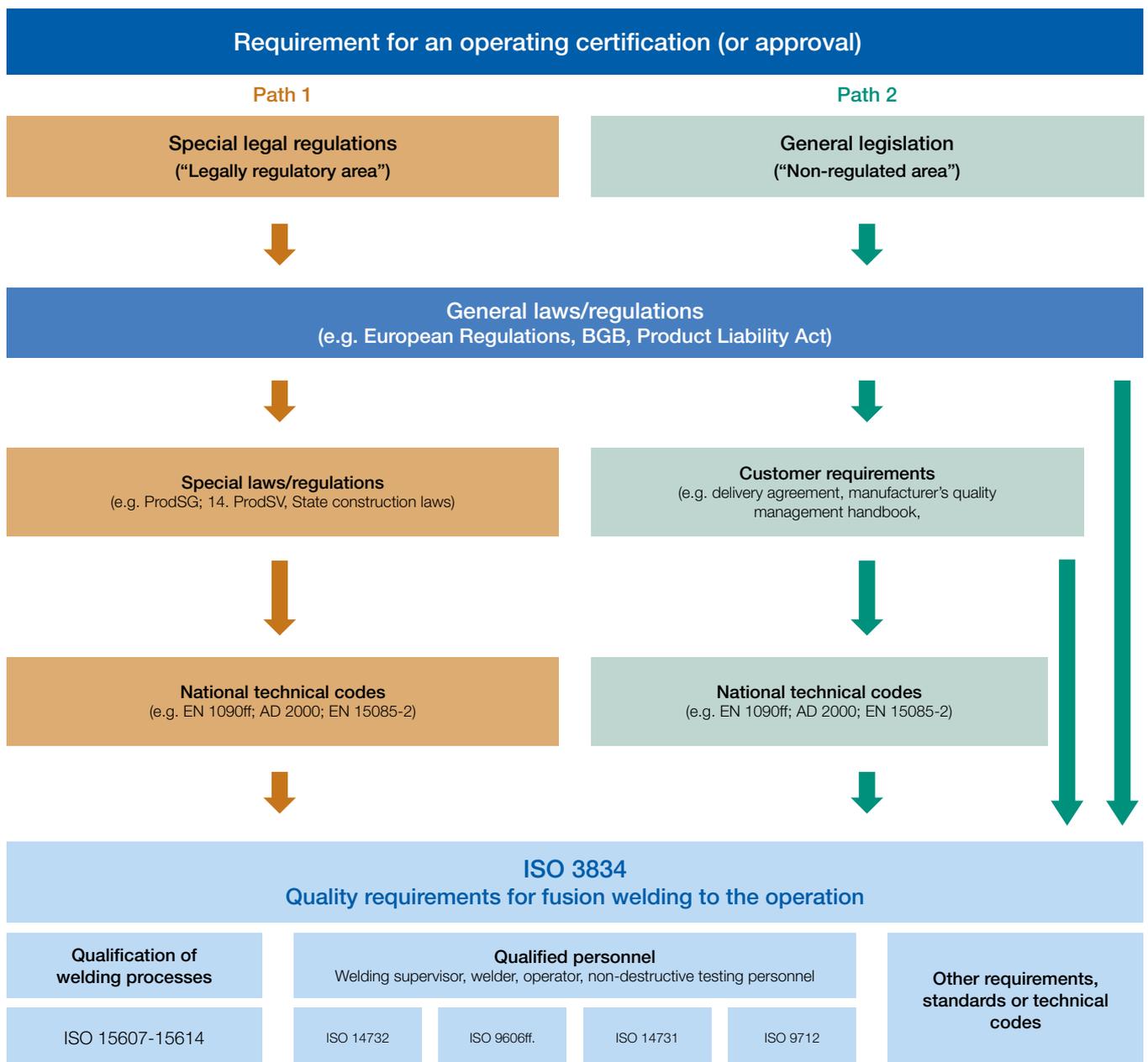


Figure 1: Possible ways of gaining an operating certification.

### Qualification of the welding process

In the field of quality assurance, welding represents a “special process”, which means that the quality cannot be easily checked. For a welding to meet the requirements imposed on it, a qualification of the welding processes is necessary. A written description of the procedure in the form of a welding instruction ensures repeatability during welding, which in turn strengthens the confidence in the specialist welding operation.

The series of standards ISO 15607 to 15614 “Specification and qualification of welding procedures for metallic materials” contains extensive regulations for the qualification of the various welding processes. The standards describe the quality relevant factors to be identified so that the weld can be clearly identified and qualified as a connecting element. Table 1 gives an overview of the different ways of qualifying welding processes.

**Table 1: Overview of the technical codes to be considered in a welding process test.**

Process	Arc welding	Gas fusion welding	Electron beam welding	Laser welding	Resistance welding	Stud welding	Friction welding
General rules	15607*						
Guidelines for a grouping system	ISO/TR 15608			not applicable		DIN technical report CEN ISO/TR 15608	
WPS	15609-1*	15609-2*	15609-3*	15609-4 or -6*	15609-5*	14555	15620
Tested welding consumables	15610		not applicable				
Present welding experience	15611					15611 14555	15611 15620
Standard welding procedure	15612				not applicable		
Pre-production welding test	15613					15613 14555	15613 15620
Welding procedure test	15614 Part 1: Steel/Nickel-Nickel alloys Part 2: Aluminium and its alloys Part 3: Non-alloy and Low-alloy Cast Iron Part 4: Finishing welding of aluminium castings Part 5: Titanium, zirconium and their alloys Part 6: Copper and its alloys Part 7: Overlay welding Part 8: Welding of tubes to tube-plate joints Part 10: Hyperbaric dry welding	15614 Part 1: Steel/Nickel-Nickel alloys Part 3: Non-alloy and low-alloy cast iron Part 6: Copper and its alloys Part 7: Overlay welding	15614 Part 7: Deposition welding Part 11: Electron and laser welding	15614 Part 7: Overlay welding Part 11: Electron and Laser Beam Welding Part 14: Laser-arc hybrid welding of steels, nickel and nickel alloys	15614 Part 12: Spot, Seam and Projection Welding Part 13: Upset (Resistance Butt) and flash welding	14555	15620
* These standards are ISO standards							

### How and to which standard do I qualify the welding process for my company?

Here ISO 15614ff. offers the greatest variety, but the application is not self-explanatory. The DVS-approved educational institutions support companies in the implementation of the qualification of welding processes. The SLVs and SLs are available as

service providers for advice on and execution of the procedure test. These have the necessary equipment for the non-destructive and destructive tests, possibly with an accredited laboratory.

## Working Group Q 5 “Qualification Requirements for Welding and Allied Processes Personnel”

The “welding process” as a “special process” is used in the production of many products. Behind each individual weld is a person (welder, operator or installer) who produces this weld, and at least one other person responsible for the work area (welding supervisor). The technical codes applicable to welding include the DVS technical bulletins and DVS guidelines, national and international standards and other regulations, as well as the testing of the skilled employees working in the field of welding, as well as the tasks and responsibilities of welding supervisors. The state-of-the-art in the relevant regulations is continually developed through the cooperation of experts from industry and trade and by research and development facilities. This up-to-date knowledge is also the basis for the technical codes related to the qualification. In the DVS, the responsible Working Group (AG) is the Q 5 “Qualification Requirements for Welding and Allied Processes Personnel”, which is also a joint committee with the Working Committee 02 of the Standards Committee Welding and Allied Processes in DIN e. V. (NAS NA 092-00-02 AA).

Welding is always a matter of trust! This is because trust is placed in the persons who monitor the process (welding supervisor) and in the persons who physically weld (qualified welder). As can be seen in the technical bulletin DVS 0703 “Limits for Imperfections of fusion-welded joints according to EN ISO 5817”, the cause of irregularities is either on the technological or manual side. Both are closely related to the qualification of personnel.

A welding supervisor is required for the “special process” and for the coordination of welding activities. In the international standard ISO 14731 “Welding Coordination – Tasks and Responsibilities”, all tasks and responsibilities are defined that are influenced by welding activities, such as the design, execution, monitoring and inspection, including the coordination of welding activities. The activities to be carried out and who will perform these activities is defined depending on the type of operation. The DVS 0711 “Tasks, Responsibilities and Competence of the Welding Coordination Personnel according to ISO 14731” provides help with the implementation. The acquisition of knowledge – qualification – through training is described in the section on education.

The manual skill of the welder is also a question of exercise. The proof of regular welding activity is the welding test certificate. This is to certify that the welder has performed welding work within a period of the last six months. The manual skill of the welder must be re-examined after three years at the latest. This is accomplished using the international standard ISO 9606-1 “Qualification testing of welders – Fusion welding – Part 1: Steels”. Persons who have special training and/or practical experience are admitted to take the examination. The special training is described in the section on education (page 14ff.).



Source: ©nikkytok / Fotolia.com

European guidelines, regulations and application standards for the qualification of personnel specify the welder tests to be performed. The tests that the welders perform are therefore implemented exclusively by test bodies which have been officially designated as such. This designation confirms that the test bodies have the necessary professional competence to carry out such tests.

A personnel testing centre verifies their competence through accreditation by the Deutsche Akkreditierungsstelle GmbH

(DAkkS). The international standard for accreditation is ISO/IEC 17024 "Conformity assessment – General requirements for bodies operating certification of persons".

However, this is not always sufficient to act as a test centre, as legal regulations may require special inspection bodies to perform the authorisation of welders. One example is in the area of the Pressure Equipment Directive (PED), where it is also necessary for the authority to make an "enabling authorisation".

## DVS technical codes for practice

### The DVS 0711 "Tasks, responsibilities and competence of the welding coordination personnel according to ISO 14731".

For the manufacture of welded constructions and components, especially in areas regulated by EU regulations and guidelines, quality requirements must be met by manufacturers and welding technicians, in particular by the welding supervisor. The fulfilment of the quality-related tasks and the responsibility is required by the product standards (application standards) of the different application areas and based on ISO 14731.

Guideline DVS 0711 describes the tasks, responsibilities and areas of competency of the welding supervision personnel, weld-

ing specialist, welding technicians and welding engineer, trained and qualified according to the international guideline DVS-IIW/ EWF 1170 for various supervisory functions in accordance with the international standard ISO 14731. An exemplary matrix is included for the implementation of the tasks, responsibilities and competencies of the welding supervisor in their own organization. Such a representation is a good aid to meet requirements concerning the responsibilities within the framework of manufacturer certifications such as EN 1090-1.

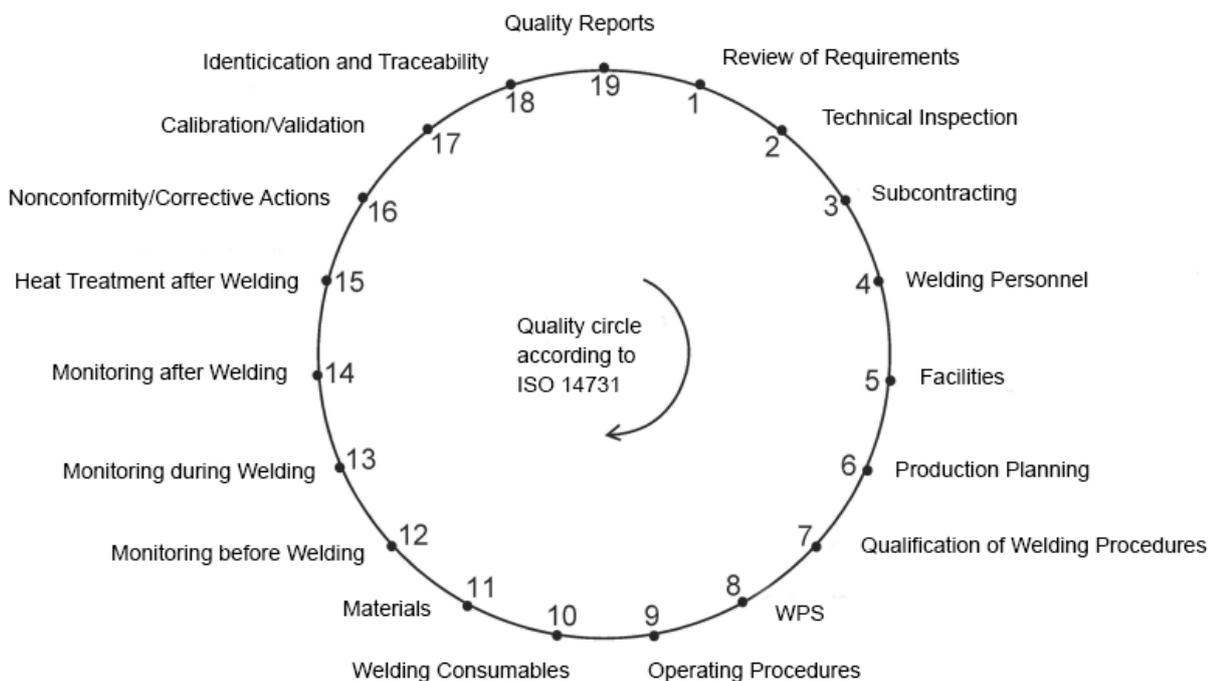


Figure 2: Excerpt from DVS 0711 guideline. The English Version is in progress.

# Education in the DVS



## The Education Committee (AfB)

The Education Committee initiates measures to adapt the training and certification offered by DVS to current developments and to prepare them for future requirements. The committee is supported by the Working Group "Training and Examination" (AG SP), which is responsible for training and certification, to create uniform training and testing materials within the framework of the qualification of technical specialists and managers. In doing so national and also current European and international

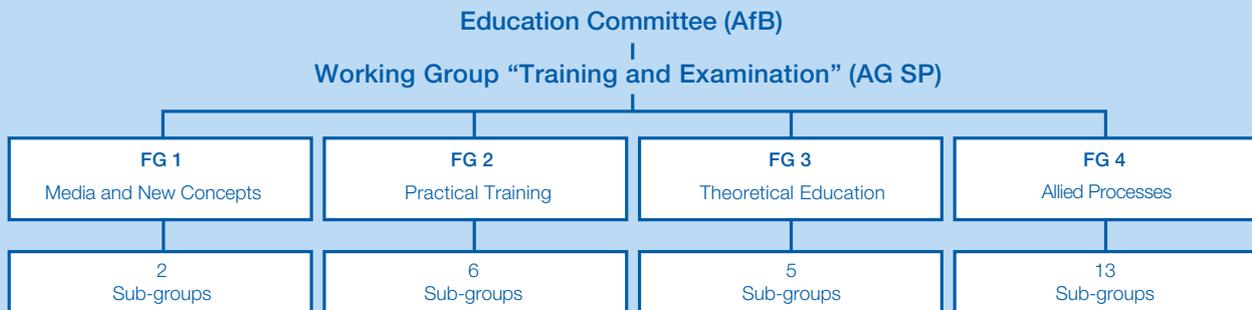
requirements are implemented in the training and examination standards. The scope of responsibility of the AG SP is the development of the teaching and learning content of the technical training and further education as well as all other areas related to the training and examination. The DVS-PersZert, the personal certification body of DVS, ensures that these training and examination standards are ultimately adhered to and implemented nationwide.

i

The current training and further education on offer from the DVS can be found under: [www.dvs-bildungskatalog.de](http://www.dvs-bildungskatalog.de)



## Structure of the Education Committee (AfB)



FG: Expert Group

## DVS-PersZert

The DVS PersZert the certification body for personnel training in joining technology exists because there is nothing better than to leave the training of experts to other experts. What sounds complicated, is basically very simple:

DVS-PersZert ensures that all DVS training and ongoing training measures meet the highest quality requirements.

At around 320 DVS approved educational institutions nationwide the teaching content includes requirements of the market and the latest technological developments, which are taken into account equally with internationally valid requirements for various fields of technology. DVS-PersZert not only regulates the qualification, that is the transfer of specialist knowledge, but also the final examination and subsequent certification. The examination and certification follows strictly defined guidelines and takes into account national and/or international standards.

The high-quality work of DVS-PersZert is confirmed by various accreditations. In addition to the accreditation according to EN ISO/IEC 17024 "Conformity Assessment – General Requirements for Bodies operating Certification of Persons" by DAkkS – Deutsche Akkreditierungsstelle GmbH, DVS PersZert also hold Approval of Zulassung der Zentralstelle der Länder für Sicherheitstechnik (ZLS) for the Pressure Equipment Directive (PED) (2014/68/EU). In addition, DVS-PersZert is the Personnel Certification Body in Germany, which is approved by the EWF – European Federation for Welding, Joining and Cutting and the International Institute of Welding (IIW) as ANB (Authorized National Body).

Any training or ongoing training and examination that is certified by DVS-PersZert, is therefore a first-class quality mark, which is highly regarded in the labour market both nationally and internationally.

## Career paths in welding technology

The ability of the welding personnel to produce high-quality products with knowledge and professional knowledge is fundamentally a qualification for the acquisition of required professional competence. The term “expertise” refers to the ability to cope with job-specific tasks and issues in accordance with the theoretical requirements independently and under one’s own responsibility. A prerequisite for this is usually a corresponding

training or advanced training. The DVS-approved educational institutions offer training as an “international welder”. Numerous possibilities for further qualification for skilled workers, master craftsmen, technicians and university graduates are available from DVS as a partner in personnel qualification in the field of joining, separating and coating (Fig. 3).



Figure 3: Qualifications and career opportunities in welding technology.

## Welder

The welder should be given appropriate training and/or have industrial experience in the respective field of activity. The candidate should also have the ability to follow verbal or written instructions to ensure the quality requirements of welded products are met. Confirmation of these abilities is by a manual skills test. Uniform rules for testing are defined by standards. This also applies to operators and installers of welding systems.

A comprehensive training as a welder is possible by attending a DVS-IIW/EFW course according to guideline DVS-IIW/EFW 1111. This course concept provides training with material-type requirements. The course of training, illustrated using "tungsten protective gas welding" (Fig. 4) as an example, ensures that the course participant receives comprehensive practical and specialist training. On successful completion, the welder is qualified according to the test standard ISO 9606-1 and holds appropriate welder test certificates.

After completing the training by stages and after successfully passing the DVS-IIW/EFW examination each participant is presented with the corresponding DVS-IIW/EFW welding diploma and the welder test certificates according to DIN EN ISO 9606-1 (after stages 2, 4 and 6).

A special training (Fig. 5) tailored to the production conditions is usually possible after consultation on site if there is sufficient prior knowledge or if the welder is to be used in particular sections. This training also includes practical training and specialist training. Coordinated practice and production tasks are performed that lead to the taking of one of the listed welder examinations according to ISO 9606-1.

Training of welders is carried out by all DVS-approved education institutions such as Schweißtechnische Kursstätten, Schweißtechnische Lehranstalten und Schweißtechnische Lehr- und Versuchsanstalten. The network of DVS education institutions comprises over 320 facilities for joining technology. They offer nationwide training and ongoing training in different directions and levels.

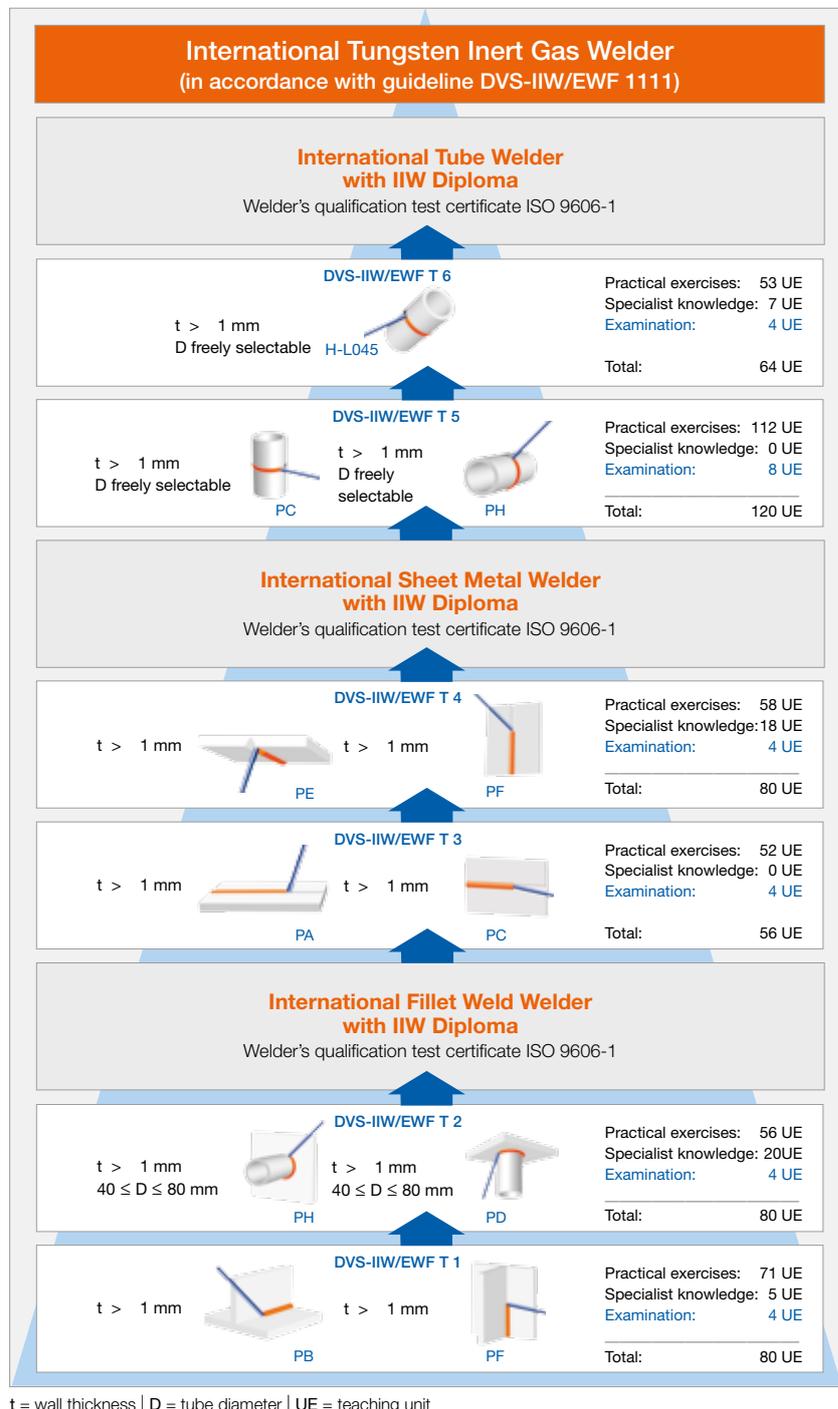


Figure 4: The training path in tungsten inert gas welding.

<b>Manufacturing conditions</b>	ISO 9606-1		
Plate welding (thin metal)	141 P BW FM1/FM5 S s02 PF ss nb 141 P FW FM1/FM5 S t02 PF sl	PH butt weld	PF fillet weld
ISO 9606-1			
Plate welding (plant and apparatus engineering)	141 P BW FM1/FM5 S s06 PF ss nb 141 P FW FM1/FM5 S t06 PF ml 141 T BW FM1/FM5 S s06 D86 HL-045 ss nb		
		PH butt weld	H-L045
ISO 9606-1			
Tube welding (pipeline construction)	141 T BW FM1/FM5 S s02 D16 HL-045 ss nb 141 T BW FM1/FM5 S s06 D86 HL-045 ss nb 141 T BW FM1/FM5 S s06 D86 PH ss nb		
		PH butt weld	H-L045
The positions PH and PC include H-L045			

Figure 5: Welding in the course of special training.

### Welding Supervision Personnel

A welding operation must have a quality assurance system in accordance with the international requirements of ISO 3834, and therefore a qualified Welding Supervisor is responsible for all welding activities. These Welding Supervisors provide the necessary welding or working instructions to the welders and supervise all work.

The tasks and responsibilities of the Welding Supervisor are defined in the ISO 14731 standard. Depending on the type and/or complexity of the manufacturing process, the welding supervision personnel must be assigned to the following groups, whereby the DVS together with the EWS and the IIW, establish recommendations for minimum requirements for welding supervisors both European and international:

Welding supervision with basic technical knowledge:

- International Welding Specialist (IWS) ➔ Tasks and responsibilities of a restricted area of simple designs

Welding supervision with special technical knowledge:

- International Welding Technician (IWT) ➔ Tasks and responsibilities of a selected or restricted area

Welding supervision with comprehensive technical knowledge:

- International Welding Engineer (IWE) ➔ unlimited tasks and responsibilities

The welding supervisor is trained at all levels at the DVS approved SLVs up to the welding engineer. Training takes place up to the level of the welding specialist at the DVS approved SLs.

### Test personnel for “non-destructive testing”

The training of International Welding Inspection Personnel (IWIP) links the two areas of welding and testing technology together. If a welding supervisor – welding specialist, welding technician or welding engineer – is further trained as a welding supervisor, then the industry has a supervisor with two competencies capable of working on both welding and testing requirements.

In coordination with the certification bodies authorised for this purpose, the prerequisite for certification according to ISO

9712 can be created by partially acknowledging individual training modules of the IWIP and a specific additional training. ISO 9712 “Non-destructive testing – Qualification and certification of NDT personnel” lays down the essential requirements for the qualification and certification of personnel performing industrial non-destructive tests (NDT).

Test personnel for non-destructive testing are trained at the SLVs.

## i

The qualifications mentioned are a small excerpt from the technology field “Welding”. Further possibilities for qualification can be found in the brochure “Das DVS-Bildungssystem. Die beste Voraussetzung für eine erfolgreiche Karriere im Fügen, Trennen und Beschichten ([www.dvs-bildungskatalog.de](http://www.dvs-bildungskatalog.de)).” The nearest educational institution can also be found on the Internet ([www.dvs-bildungseinrichtungen.de](http://www.dvs-bildungseinrichtungen.de)).

The DVS and DVS-Media also provide a range of information materials such as posters that are available as PDF files on the DVS homepage: [www.dvs-ev.de](http://www.dvs-ev.de).



# Specialised media and teaching materials for the “Welding Qualification”



## The DVS Media GmbH

The DVS Media GmbH is the right starting point for comprehensive publications and media regarding joining, cutting and coating. The publishing program includes German and foreign-language trade journals, technical books, teaching media, DVS technical bulletins and guidelines, videos and software. The products from the DVS Media GmbH represent all the fields of activity of the DVS Association and all the results that they develop.

Numerous items of the DVS Media GmbH specialist media are devoted to the working results in the areas of research, technology and education around Welding Qualification: These include specialist books and periodicals, as well as training materials and individual or collections of DVS technical bulletins and guidelines.



### Sources for the DVS technical codes

DVS members have free access to all DVS technical bulletins and guidelines under [www.dvs-regelwerk.de](http://www.dvs-regelwerk.de). Interested persons who are not members of the DVS can refer to the DVS technical codes under [www.dvs-media.info](http://www.dvs-media.info).

## Your contacts for specialised media and teaching materials

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## Publications regarding the “Welding Qualification”



### Merkblatt DVS 0700:

#### „Voraussetzungen zum Erwerb der Berechtigung, betriebseigene Schweißer- und/oder Bedienerprüfungsbescheinigungen als Hersteller auszustellen“

The DVS technical bulletin is a neutral and independent guideline for conformity assessment bodies (certification bodies) for the naming of the welding supervisor. The examiners are given the right to issue in-house welders and/or operators certificates as manufacturer.

Technical bulletin DVS 0700, Autumn/Winter 2017, 6 pages



### Merkblatt DVS 0701:

#### „Übertragbarkeit von Standardschweißverfahrensprüfungen (WPS)“

The standard EN 1090 (parts 1-3) regulates the production of steel and aluminium constructions throughout Europe by applying a uniform standard. The requirements for the manufacturers of such products are also specified in EN 1090ff. established. The objective is to ensure the verifiable, reproducible quality of the products.

A key component of EN 1090 is the qualification of the welding processes used, which is also linked to documentation and testing requirements. This is because products in the EXC 2 design class may only be manufactured using “Welding Procedure Specifications” (WPS). WPS has been offered for some time and are based on “qualification through the use of a standard welding method” (ISO 15612). Partially device-specific, partly of universal validity that can be transferred to other devices. On this issue, the DVS and the ZVEI – Fachverband Elektro-Schweißgeräte have formulated non-binding cornerstones in this technical bulletin that can serve as a practical interpretation aid.

Technical bulletin DVS 0701, August 2016, 44 pages



### Richtlinie DVS 0711:

#### „Aufgaben, Verantwortung und Zuständigkeit des Schweißaufsichtspersonals nach DIN EN ISO 14731“

The DVS guideline describes the tasks, responsibilities and areas of responsibility of welding supervisors, trained and qualified according to the international guideline DVS-IIW/EFW 1170 in accordance with the international standard ISO 14731 (see also page 13).

Guideline DVS 0711, August 2016, 27 pages



**DVS-Fachbücher, Band 98:  
Qualitätsmanagement-Handbuch  
Qualitätsmanagement für kleine und mittlere Schweißbetriebe**

A quality management system helps in the optimisation of various success factors. Properly structured and applied, it is an effective management tool that can be used to achieve critical improvements in any company. The quality management handbook is a commented manual according to ISO 9001: 2000-12, taking into account the term “special process”, here oriented to quality in welding used in steel construction, rail vehicle construction and pressure equipment as applied by Gebrüder Muster GmbH with an operational sequence and process description and forms for use in practice.

5<sup>th</sup> edition 2008  
192 pages, paperback,  
ISBN: 978-3-87155-222-9, item number: 102220



**DIN-DVS-Taschenbuch 191:  
Schweißtechnik 4: Auswahl von Normen für die Ausbildung des schweißtechnischen Personals**

The collection of standards is specifically designed for the training of the welding personnel. It is aimed at welders, welding specialists, welding technicians and welding engineers, but is also important for students and responsible employees in welding operations. The DIN-DVS paperback contains standards from the areas of “common understanding”, “welding accessories”, “materials”; “quality requirements”, “welding guidelines”, “testing of welding personnel, process control and welded joints” and “Design and construction of steel structures”.

11<sup>th</sup> edition 2014  
762 pages, 200 images/178 tables  
ISBN: 978-3-87155-245-8, item number: 502450



**DIN-DVS Taschenbuch 290:  
Schweißtechnik 8: Europäische Normung – Schweißtechnisches Personal,  
Verfahrensprüfung, Qualitätsanforderungen, Bewertungsgruppen – Normen,  
Merkblätter**

The European Single Market applies uniform quality requirements for the production of welding products. A selection of the most important ISO standards and DVS rules for the quality assurance of welded components is contained in this DIN DVS paperback. It provides information on the subjects of “requirements for welding personnel (testing and supervision)”, “welding process tests and instructions, material group classification”, “quality requirements”, “weld seam preparation, general tolerances and welding plan” and “assessment groups for irregularities”.

7<sup>th</sup> edition 2016  
694 pages, 364 images and illustrations/142 tables  
ISBN: 978-3-945023-78-5, item number: 502940

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[www.dvs-aft.de/Aft/Q/Q2](http://www.dvs-aft.de/Aft/Q/Q2)

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**Working Group Q 5 “Qualification Requirements for Welding and Allied Processes Personnel”**

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