

## RESEARCH AND DEVELOPMENT

### Processes and Procedures

- Arc welding (gas-shielded arc welding, plasma arc welding, orbital welding, drawn arc and initial contact capacitor discharge stud welding, magnetically impelled arc welding and submerged arc welding)
- Resistance welding (spot, projection and roller seam welding, pressure butt welding)
- Laser beam material processing (laser beam welding, hardening and brazing, laser beam arc hybrid welding)
- Electron beam welding and electron beam fusion
- Thermal cutting (flame, plasma arc and laser beam cutting)
- Brazing (flame brazing, induction brazing, furnace brazing in shielding gas atmosphere, GMA and resistance brazing)
- Coating (weld surfacing with flux-cored self-shielded wire, tandem GMA weld surfacing, single-wire GMA welding, plasma-arc powder weld surfacing, roller seam weld surfacing, TIG hot wire welding)
- Surface treatment (hardening, remelting, alloying, surfacing and induction surfacing)

### Publicly promoted, application-oriented research and development

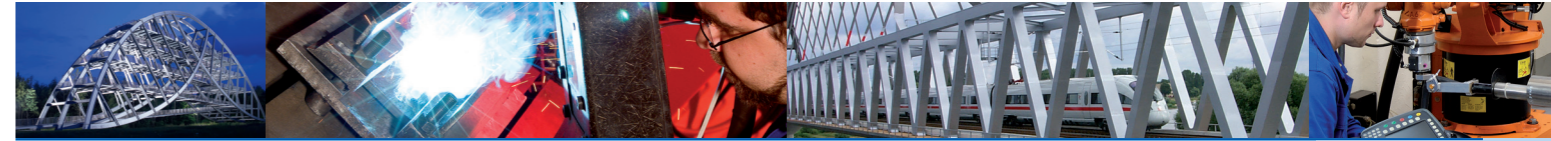
- Development and optimisation of new process and procedure variants
- Investigation into the material behaviour during welding
- Elaboration of fundamentals of the designing of welded structures

### Research and development for industry and skilled trades

- Development and optimisation of application-related procedure variants
- Investigation into the material behaviour in the case of customer-specific applications
- Consultation in joining technology
- Structural design of welded components
- Simulation of temperature distribution, distortion, residual stress and structural condition

## ACCREDITATION - CERTIFICATION - NOTIFICATION

- SLV Halle GmbH is a co-operation partner of DVS ZERT GmbH. DVS ZERT GmbH conducts the certification of the factory production control within the framework of the construction products regulation (such as EN 1090-1) and the certification according to DIN EN 15085-2 for the welding of railway vehicles and components
- Testing, monitoring and certification body (PÜZ) for metal products; testing body according to § 20 para. 5 MBO (notified body for the field of DIN 18800-7, DIN V 4113-3, DIN EN ISO 17660)
- Testing, monitoring and certification body (PÜZ) for reinforcing bars, reinforcing steel connections and steel anchoring
- Inspection body for railway-typical tests on components of railway vehicles
- Inspection body for the certification of personnel according to the Pressure Equipment Directive (recognized by DVS-PersZert)
- Recognized training centre for the training of international welding specialists (IWS), welding technologists (IWT), welding engineers (IWE) and welding inspection personnel (IWIP) as well as international welders (recognized by DVS-PersZert)
- Certification by CERTQUA as approved body for the support of further professional training according to AZAV for the fields of joining, cutting, coating and non-destructive testing
- Recognized training centre for the KOR-Schein certificate for corrosion protection according to ZTV-ING, part 4, section 3 (recognized by the Training Council KOR-Schein at the Bundesverband Korrosionsschutz e.V.)



**DVS** SLV HALLE  
A company of the DVS – German Welding Society

Schweißtechnische Lehr- und  
Versuchsanstalt Halle GmbH  
Köthener Straße 33 a  
06118 Halle (Saale)

+ 49 345 5246-0

[www.slv-halle.de](http://www.slv-halle.de)

Kooperierende  
Einrichtung der **DVS** GSI SLV

**SLV HALLE GMBH**  
Services

## ABOUT US

The SLV Halle GmbH (Welding Institute for Training, Research and Services) is a charitable company owned by the DVS - German Association for Welding and Related Processes e.V. The company works in the field of education and training, materials engineering, quality assurance in welding production and corrosion protection but also in research, development and technology transfer. It is a co-operation partner of the GSI – Gesellschaft für Schweißtechnik International mbH.

## THEORETICAL AND PRACTICAL TRAINING

### Training of welding supervisors

- Welding Engineer (IWE)
- Welding Technologist (IWT)
- Welding Specialist (IWS)
- Welding Inspection Personnel (IWI)
- Welding Designer
- DVS®-Welding Shop Foreman
- DVS®-Welding Instructor

### Welder training

- Manual metal arc welding
- Gas-shielded metal arc welding
- Gas-shielded tungsten arc welding
- Gas welding
- Welding on special materials

### Special training

- Submerged arc welding
- TIG orbital welding
- Welding with flux-cored wires
- Laser beam welding/-cutting/-surface treatment
- Electron beam welding
- MIG soldering
- Reinforcing bar welding
- Stud welding
- Flame straightening
- Setter for resistance welding EWP-RW

## THEORETICAL AND PRACTICAL TRAINING

### Training, testing and certification acc. to DIN EN ISO 9712 (NDT)

- Radiographic testing RT level 1+2
- Penetrant testing PT level 1+2
- Magnetic particle testing MT level 1+2
- Ultrasonic testing UT level 1+2
- Visual testing VT level 1+2+3
- Film evaluation RT 2.FI
- Time of flight diffraction (TOFD)
- Phased array

### Training of special corrosion protection personnel

- Coating inspector
- Executive member of corrosion prevention according to ZTV-ING part 4

### Conferences/seminars

- International Conference Beam Technology
- European Conference JOIN-TRANS
- Conference on wear protection of components by means of weld surfacing
- Seminars/Colloquia on different subject areas

## QUALITY ASSURANCE

### Manufacturer qualifications and welding certificates

- DIN EN 1090-2 (welding on steel supporting structures/metal construction)
- DIN EN 1090-3 (welding on aluminium supporting structures/metal construction)
- DIN EN ISO 17660-1 (welding on reinforcing bars)
- DIN EN 15085-2 (welding in railway vehicle construction)
- DIN 6701-2 (adhesive bonding in railway vehicle construction)

### Construction and fabrication monitoring

- Construction-accompanying monitoring of welding work and corrosion protection work in bridge buildings and steel construction
- Evaluation of welded structures

### Qualification of welding processes

(e. g. DIN EN ISO 15614-1 or 15613)

### Expert Reports on cases of damage and support with regard to questions relating to welding technology

## QUALITY ASSURANCE

### Certification in cooperation with the DVS ZERT GmbH

- DIN EN ISO 9001 (QM systems)
- DIN EN ISO 3834 (quality requirements relating to welding technology)
- SCC (Safety Certificate Contractors)
- DIN EN 1090-1 (certification of the factory production control for manufacturers of steel and aluminium supporting structures)
- DIN EN 15085 (welding in rail vehicle construction)

## MATERIALS ENGINEERING

### Destructive material testing

- Investigation of mechanical-technological quality values under German, European and international guidelines and regulations
- Fatigue endurance limits and endurance strength of materials, welded joints and components
- Strength analysis of welded components and other constructions
- Experimental testing of complete components by simulation of the operating conditions on designated test fields
- Numerical strength analysis of welded components and other constructions (e.g. finite element method; FEM)

### Non-destructive material testing

- Non-destructive testing as part of construction supervision
- Non-destructive testing on site
- Preparation of test instructions and technologies
- Testing of laser-welded joints
- Testing of spot-welded joints
- Radioscopic testing of welded joints and castings
- Assessment and control of non-destructive material testing

### Welding metallurgy

- Determination of the chemical composition of base material and welding material by means of the latest emission spectrometry technology
- Execution of metallographic work to evaluate the structure of metal materials
- Low-load and micro-hardness testing on metallographic specimens
- Failure analysis and expert opinions
- Welding metallurgy consultation

## ADDITIONAL SERVICES

### GSI SLV welding trainer

- Computer based simulation system to train the motor movement during welding with a real arc

### Welding software

- WPS Manager management of welder qualifications, drafting of welding procedure specifications, documentation of work samples and welding procedure qualification records
- Online Register Railway Vehicles for management and quality control of certificates acc. to EN 15085
- Online Register Metal Buildings for management and quality control of certificates acc. to EN 1090

### Process technology

- Support for companies with regard to the fabrication preparation of the product certification or to the equipment testing by experienced experts or by using suitable installation engineering
- Development of automation solutions and automation technology for production

### Special welding operations

- Repair, maintenance and manufacture of prototypes or individual devices

### Job welding work

The welding-related production with a series character is performed by SLV Service GmbH.