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1 General

The training to become a plastics welder is ongoing vocational training. The successful participation in the course concludes with the welder qualification test according to the DVS® 2212-3 guideline.

2 Educational facilities

The course to become a plastics welder is staged at the DVS educational facilities authorised for this purpose.

3 Prerequisites

The following prerequisites apply to the participation in the course to become a plastics welder:

- 3.1a Proof of fundamental knowledge in the field of plastics processing
or
- 3.1b Participation in a foundation course about the processing of semi-finished products made of thermoplastics according to the DVS® 2280 guideline.
- 3.2 Proficiency in the course language to such an extent that the teaching can be followed and the theoretical qualification test can be taken.

The prerequisites for the admission to the qualification test are governed by the DVS® 2212-3 guideline.

4 Course structure and course duration

The course with a total duration of 80 teaching units (TUs) is divided into the following course parts:

- Part 1: Specialist theory
- Part 2: Specialist practice
- Part 3: Qualification test

One TU corresponds to a period of 50 minutes. The course contents are indicated on the syllabus.

5 Qualification test and course certificate

The qualification test is governed by the DVS® 2212-3 guideline. After successfully taking part in the course, the participant receives a participation certificate.

This publication was drawn up by a group of experienced experts in cooperative work on an honorary basis and was approved by the "Training and Qualification Testing" working group. It is binding for DVS educational facilities. The user must always check whether the version in his possession is still valid.

DVS, Technical Committee, Working Group "Joining of Plastics"
DVS, Education Committee, Working Group: "Training and Qualification Testing"

Part 1: Specialist theory

Chapter	Subject matter	TUs
1	Economic significance and application of the plastics – economic significance – areas of application – properties	0.5
2	Structures and types of the plastics – manufacture of the plastics (from the petroleum to the plastic) – monomers, polymers and polymer chains – structures of the plastics – thermoplastics, thermoset plastics and elastomers – flow behaviour of thermoplastics (MFR)	1
3	Polymer webs made of PE-HD, ECB and PVC-P – types – areas of application – manufacture – properties – behaviour in heat	3
4	Fundamentals: Welding of plastics – definition, influencing variables and overview of the welding processes	2
5	Hot gas fan welding (WF), hot gas string-bead welding (WZ), hot gas extrusion welding (WE), hot gas lap welding (WU), heated tool welding (H) (overview) and heated wedge welding (HH) – processes and welding parameters – requirements on the devices and the automatic machines	8
6	Weld configuration in the case of lap joints (DVS 2225-1) – weld shapes and weld dimensions	2
7	Welding in site conditions – substrate condition, environmental influences and internal monitoring Rectification of imperfections – troubleshooting and repair possibilities – making connections	4
8	Testing and inspection of welded joints – non-destructive testing and inspection – destructive testing	2
9	Documentation – elaboration of welding record sheets	1.5
Total for specialist theory		24

Part 2: Specialist practice

Chapter	Subject matter	TUs
1	Hot gas string-bead welding (WZ) – execution of PVC-P and PE-HD surfacing welds – weld overlaps in butt joints on panels made of PE-HD	8
2	Hot gas lap welding (WU) – WU of PVC-P, ECB and PE-HD with hand-held devices – testing of the weld strength (peeling test)	8
3	Heated tool butt welding (HS) – processes and welding parameters – HS of pipes made of PE-HD with a welding machine (demonstration)	12
4	Starting-up and setting of welding devices and automatic welding machines (WE, WU and HH) – determination and checking of the welding parameters – welding of lap joints on webs made of PVC-P, ECB and PE-HD with the WE, WU and HH processes – execution of butt joints, lap welds and surfacing welds – proper rectification of imperfections – manufacture of T joints – elaboration of welding record sheets	10
5	Testing and inspection of welded joints	2
Total for specialist practice		40

Part 3: Qualification test**Teaching units in total**

16

80