

Technical Code DVS 2207-4 Supplement 1

Welding thermoplastic materials

Extrusion welding of pipes, piping parts, fittings and panels

Welding parameters

Technical Committee in DVS

Working Group W4 "Joining Plastics"

Subgroup W4.1b "Hot gas welding"

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This supplement to Guideline DVS 2207-4 contains parameter reference values for hot-gas extrusion welding. They apply to manual welding with the machines and equipment specified in Guideline DVS 2207-4 Supplement 1 and the materials listed in Table 1.

When welding is carried out with welding machines, other parameters may also be required (see section 10.3).

The welding speed depends directly on the compound output, the weld cross-section and the preheating temperature. Experience indicates it should be between 200 and 350 mm/min.

It must be ensured that the parts to be joined are plasticised to a depth of between 0.5 mm and 1 mm at the joint and across the width of the weld (see Section 10.3).

Table 1. Welding parameter reference values.

Materials	Abbreviation	Compound temperature ¹⁾ [°C]	Hot-gas temperature ²⁾ [°C]	Hot-gas volume ³⁾ [°C]
High-density polyethylene	PE ⁴⁾	210...230	250...300	150...400
Polypropylene Type 1, 2, 3	PP-H, PP-B, PP-R	210...240	250...300	150...400
Polyvinyl chloride unplasticised	PVC-U	190...200	330...360	150...400
Polyvinyl chloride high impact resistance	PVC-HI	170...180	280...340	150...400
Polyvinyl chloride chlorinated	PVC-C	195...210	300...360	150...400
Polyvinylidene fluoride	PVDF	240...260	280...350	150...400

¹⁾ measured with a thermometer inserted at the extruder outlet of the welding machine

²⁾ Measured at the centre of the nozzle orifice, 5 mm into the nozzle

³⁾ Cold air intake volume at ambient pressure, depending on the output volume

⁴⁾ PE 63, PE 80, PE 100