

Technical Code DVS 2207-3 supplement 1

Welding thermoplastic materials

Hot-gas string-bead welding, hot-gas welding with torch separate from filler rod

Welding parameters

Technical Committee of the DVS
Working Group W4 "Joining Plastics"
Subgroup W4.1b "Hot-gas welding"

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This supplement to Guideline DVS 2207-3 contains welding parameter reference values for hot-gas string-bead welding and hot-gas welding with torch separate from filler rod. They apply to manual welding with the equipment described in Guideline DVS 2207-3 Supplement 2 and the materials listed in Table 1.

Before the parameters are applied, the information provided by the semi-finished product manufacturer must also be taken into account.

By coordinating the parameters for hot-gas temperature, gas quantity and welding speed, it must be ensured that the parts to be joined are plasticised to a depth of at least 0.3 mm at the joint.

Table 1. Welding parameter reference values

Welding-process	Materials	Abbreviation	Hotgas-temperature ¹⁾ [°C]	Hotgas-volume-flow ²⁾ [l/min]	Welding-speed ³⁾ [mm/min]	Welding force [N] with wire Ø		
						3 mm	4 mm	
Hot-gaswelding with the torch separate from the filler rod (WF)	High-density polyethylene	PE ⁴⁾	300...320	40 - 60	70...100	8...10	20... 25	
	Polypropylene, Type 1, 2, 3	PP-H, PP-B, PP-R	305...315		60...100			
	Unplasticised polyvinyl chloride	PVC-U	330...350		110...170			8...10
	Chlorinated polyvinyl chloride	PVC-C	340...360		60...100	15...20		
	Polyvinylidene fluoride	PVDF	350...370		40...60			25...30
Hot-gas string-bead welding (WZ)	High-density polyethylene	PE ⁴⁾	300...340	45 - 60	250...350	15...20	25...35	
	Polypropylene, Type 1, 2, 3	PP-H, PP-B, PP-R	300...340					
	Unplasticised polyvinyl chloride	PVC-U	350...370					
	Chlorinated polyvinyl chloride	PVC-C	370...390		180...220	20...25		30...35
	Polyvinylidene fluoride	PVDF	365...385		200...250			

¹⁾ Measured at the centre of the main nozzle orifice, 5 mm into the nozzle

²⁾ Cold air intake volume at ambient pressure

³⁾ depending on the filler material diameter, the welding temperature and the weld joint geometry

⁴⁾ PE 63, PE 80, PE 100, PE 100 RC