

Abstract

Process for the butt welding of crosslinked polyethylene pipes (PE-X pipes)

The invention relates to a method for the butt welding of crosslinked polyethylene pipes in order to utilize these pipes in industrial and underground pipeline construction.

According to the invention, the pipe end faces of the PE-X pipes are spatially melted by a serrated heating element, temperature $> 420^{\circ}\text{C}$ but $< 450^{\circ}\text{C}$, with a warming-up time > 60 s, in such a way that enlarged and serrated pipe end faces are produced, the integral melt layers of which come into connection with one another during the joining process under a welding pressure of 0.10 to 0.40 N/mm^2 in such a way that a melt phase of these layers which is capable of entering into a connection evokes a mixing effect of the melt by means of turbulent movements at the contacting tooth flanks and a spatially distributed weld seam is produced with an enlarged binding surface.

The welding pressure is maintained until the joining zone has cooled to ambient temperature, figure 2.

With the butt welding method according to the invention, PE-X pipes can be connected to one another directly in a permanent and durable manner and without welding auxiliary means or an additional material.