

Pool Liner Seam Thickness Guidelines

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The most common method for sealing vinyl pool liners is a method called radio frequency (RF) welding. This method has been used for many years. There are many parameters that go into making a good seal such as power settings, dwell time, pressure, cooling cycle, width of the bar, length of the bar, levelness, etc. There is always a conflict when increasing the speed of the cycle and the quality of the resulting seal. Because of the power-time relationship, there is a limit to cycle time for any given sealer and film.

Evaluating the seal strength is normally performed on a tensile testing machine. The seal can be measured by performing a peel test or a pull test. This test method is effective but causes the destruction of the seal. HPG recommends that these tests be performed at elevated temperatures using the tensile tester within an environmental chamber.

If non-destructive testing must be done then the results are much less accurate. The most common method is to examine the bead extruded on each side of the seal. Quality of the sealing process will dictate the size. In addition, measuring the finished seal thickness can also provide valuable information. As a rule of thumb, the seal should be approximately 75% of the combined thickness of the two pieces being welded. For example, if welding two 20 mil films, the weld should be 75% of 40 mils or 30 mils. Any thickness 90% or higher is probably under sealed and too weak. Seals that are 50% or less of the original thickness are oversealed. Oversealing can cause weakening of the film area next to the seal and a weak seal itself. 75% thickness is a guideline.

When testing seals either by destructive or non-destructive means, a series of samples must be taken across the width of the bar. Because most sealers are effected by a phenomenon called "standing wave effect", the quality of the seal is not the same across the length of the bar. Most of the time the operator tries to adjust for this by leveling. The standing wave effect can cause an uneven voltage distribution across the bar that results in heavier seals in some areas and lighter in others. It is for this reason that seals be tested in several areas across the width of the bar.

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