

Inlet Manifold - Tube Diffusers

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The objective of this team is to create a fabrication method for the most recent design for the diffusers on the inlet manifold. The diffusers on the manifold need to be constructed so a line source of fluid is created that will be divided between the two sides of the sedimentation tank. To accomplish this the diffusers, which are currently simply unaltered pieces of PVC pipe need to be flattened in some way as to turn the bottom geometry of the pipe from a circle into a rectangle.

Current Research

The team that worked on the fabrication of the inlet manifold diffuser fabrication during the fall of 2011 came up with a few ways to accomplish the goals of creating a line source of fluid. To be able to shape the PVC into a rectangle, a variety of heating methods were tested. Methods tested included immersing the PVC in boiling water and warming the pipe with heat guns. The most successful method turned out to be immersing the pipe in boiling water that was constantly being heated over a hot plate.

The team also had to come up with a method for changing the physical shape of the PVC from a circle into a rectangle. The two main ideas that were tested to try and accomplish this were stretching the pipe while it was hot until it became the correct size, or forcing the pipe over a mold while it was hot. The most successful method of reshaping the pipe turned out to be forcing the pipe over a metal mold; this method worked especially well when the mold itself was also heated.

Future Research

Though the team was able to find the most successful method for heating and stretching in the pipe for the diffusers in the AquaClara lab it is highly likely that when the diffusers are actually fabricated in Honduras a different method will be used. For example instead of heating the PVC pipe in boiling water over a hot plate, the PVC will most likely be heated over an open fire. Also, in terms of future research a method for keeping all of the diffusers aligned once they are in the tank must be looked into. Some possible ways of doing this would be attaching some kind of rod along both sides of the pipes so that they do not move or maybe finding a way to tie all of the pipes together.

Team Members

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Documents

	Challenges	Tasks	Teach-In	Presentation
Fall '11	? Unknown Attachment	? Unknown Attachment	? Unknown Attachment	? Unknown Atta

Related Research

[Fall 2010 Inlet Manifold Team](#)