

TITLE: Alternative Methods for Hot Tub Jet Action (a.k.a “Plumbingless Jets”

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Proposal/Scope

The jets that create water movement in a hot tub are supplied through a myriad of plumbing lines, fittings, and manifolds. This creates several hundred water and air connection points per hot tub. There are many challenges with this design:

- Every connection point is an opportunity for leaks – either during the manufacturing process, or later in the field.
- An extensive inventory of component SKUs must be maintained to support the wide variety of combinations.
- Substantial labor cost and time is required to assemble the numerous components and connections.
- There is a high risk that plumbing will be done incorrectly due to the myriad of combinations.
- The plumbing lines and connections are prone to chemical, mineral scale, and microbial buildup, which cannot be cleaned effectively.
- Energy efficiency is reduced, because the plumbing lines and connections create more surface area for heat loss.

The goal of this project is to investigate alternative methods to create jet action in a hot tub without the need for air and water plumbing supply lines. To accomplish this, the jet must pull water in from the main body of water, and push it back out into the main body of water through a different orifice from where it was pulled in – and do all of this at a very high rate of speed, with millions of cycles of reliability – and provide a user experience equal to or better than current plumbed systems.

Budget: \$10,000