

## Experiences with water vortexers

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Institute of Ecological Technology (IET) and Watreco have investigated and developed water treaters based on Viktor Schaubergers work since 1994. In this technology we utilize the effects of the vortex for various purposes. By treat the water with Vortex Process Technology (VPT), ice for ice skating, as an example, can be improved. Energy can also be saved as the ice laying process demands lesser energy if vortex treated water is used.

Another application is algae problems in ponds can be reduced or solved as the VPT imitates the natural cleaning process found in rivers. As a side effect, an economical aeration of the water is achieved.

The idea behind VPT - Vortex Process Technology is to allow a fluid to self-organize into an ordered vortex movement. Vortex movement is fundamental in nature. It occurs in galaxies, tornados, mountain streams and human blood flow. The unique biomimetic design of VPT applications allows the harnessing of the extreme power of a tornado for industrial applications.

The vortex generator is inspired by Viktor Schauberger, an Austrian forester who spent his entire life studying natural water flow. During the first half of the 20th century, Schauberger came up with eco-friendly alternatives to some of the non-sustainable technology still in use today.

### **VPT - Vortex Process Technology**

The vortex generator produced by Watreco is able to generate a well-defined and controlled vortex. The vortex generator shapes the fluid flow in three stages:

1. Preformer. Where the vortex inner parts is preformed
2. Channels. After the preformer, the fluid is directed through a set of channels. Each channel delivers a jet stream of vortex flow tangentially into a vortex chamber.
3. Vortex chamber. In the vortex chamber, the vortices from the channels are wound together, similar to how a rope is spun together from a set of threads. A strong and stable vortex flow is formed inside the vortex chamber.

### **Some expected effects on the water**

An examination of the properties of treated water was made in 2010 and 2011 by the Eindhoven BV (PTG/e), an independent research and knowledge of Technology (TU/e). Samples were taken from municipal water in Holland, before and after VPT treatment. Water treatment was made with a standard Watreco vortex generator at a water pressure of 3.5 bar.

- Viscosity a decrease in viscosity was observed by PTG/e after VPT treatment.
- Heat transfer - VPT treatment changed the melting behavior of ice.
- Heat capacity was higher for liquid water and ice.
- Electrical conductivity increased after VPT treatment.
- Wettening ability increased after VTP treatment.
- Crystallization of water, minerals and other substances is affected

Applications are numerous and the effects are scalable.