

Twenty Years of Vortex Flow™ – The Magic Continues

Vortex Flow™ MILESTONE:

- 1997** 1st Vortex Flow installed in Minneapolis, Minnesota
- 2003** 1st Vortex Flow installed in Canada, in Sarnia, Ontario
- 2016** 2 Vortex Flow units designed for 5,000 litres per second of storm water
- 2019** 40 Vortex Flow units in operation in Ontario



It has been 20 years since Vortex Flow won the American Public Works Association (APWA) Technical Innovation Award. Since then, it has been performing its magic inside drop structures across Canada, the U.S. and many other countries around the world.

Vortex Flow is a fabricated PVC fitting that is installed inside drop structures to dissipate fluid energy and suppress odours, which it does 24 hours a day-365 days a year. But that's not all. The Vortex Flow also oxygenates the wastewater, greatly increasing the dissolved

oxygen content and decreasing the hydrogen sulphide content, all without chemicals or added energy as it works by gravity alone. In addition, there are no moving parts so that there is nothing that can break down and each unit cleans itself. If you ever get the chance to witness one in action, you will agree that the Vortex Flow is truly an engineering marvel.

“Vortex Flow was more effective at reducing hydrogen sulphide content and increasing dissolved oxygen content compared to the chemical injections”

The very first Vortex Flow installation was in Minneapolis, Minnesota in 1997. This unit was installed at the discharge of a long 750mm sewage forcemain with a 5-metre drop. This created the perfect test situation because, prior to this, the city had installed an underground chemical injection system at this location and was injecting 250-350 litres of Bioxide daily to oxidize



BENEFITS

- » Reduces Corrosion Extends Sewer Life
- » Reduces Odor Treatment Costs
- » Improves Waste Water Quality
- » Provides Energy Dissipation
- » Reduces Maintenance Costs

After a new drop structure was installed with Vortex Flow inside in Sarnia, Ontario, the odor and corrosion problems disappeared.

the hydrogen sulphide and control odour at the drop. With the Vortex unit installed, researchers were able to test and compare the effectiveness of chemical injection vs. Vortex Flow. After testing was complete, the results demonstrated that the Vortex Flow was more effective at reducing hydrogen sulphide content and increasing dissolved oxygen content compared to the chemical injections, which at the time were costing the City of Minneapolis approximately \$6,000 per month, not including the cost to remove these chemicals at the treatment plant.

In Ontario as of July 2019, there are 40 Vortex Flow units in operation. Most of these are in the Greater Golden Horseshoe area with more than 20 units in the design stage. The first unit installed in Canada was in Sarnia, Ontario in 2003. This was a severe situation in which a long sewage forcemain was discharging into a drop structure that fed into a wet well. The first drop structure had to be replaced after only five years and local operators reported almost fainting when approaching within 50 feet of the structure due to the strong smell of hydrogen sulphide gas. The city tried other

options to control the odour and corrosion at the drop structure, but none were able to completely solve the issues at hand. After a new drop structure was installed with a Vortex Flow inside, the odour and corrosion problems disappeared.

This was all the Vortex Flow needed to take off in Ontario. Once the Sarnia unit was in operation, managers from other municipalities were able to visit the drop structure and smell for themselves. After witnessing how well the Vortex Flow works, everyone wanted to try one in their municipalities. Then it spread. Now there are Vortex units in operation in the City of Toronto, Durham Region, York Region, Peel Region, the City of Hamilton, Niagara Region, the City of Ottawa, and the City of Sudbury, with more units planned for Sarnia.

Although the Vortex Flow was originally designed to suppress odours at sanitary drop structures, it is becoming quite popular as an energy dissipater in storm sewer applications. As odours are typically not a concern with storm sewers, the Vortex Flow would not be required for that purpose. However, if the

Municipal Case Study

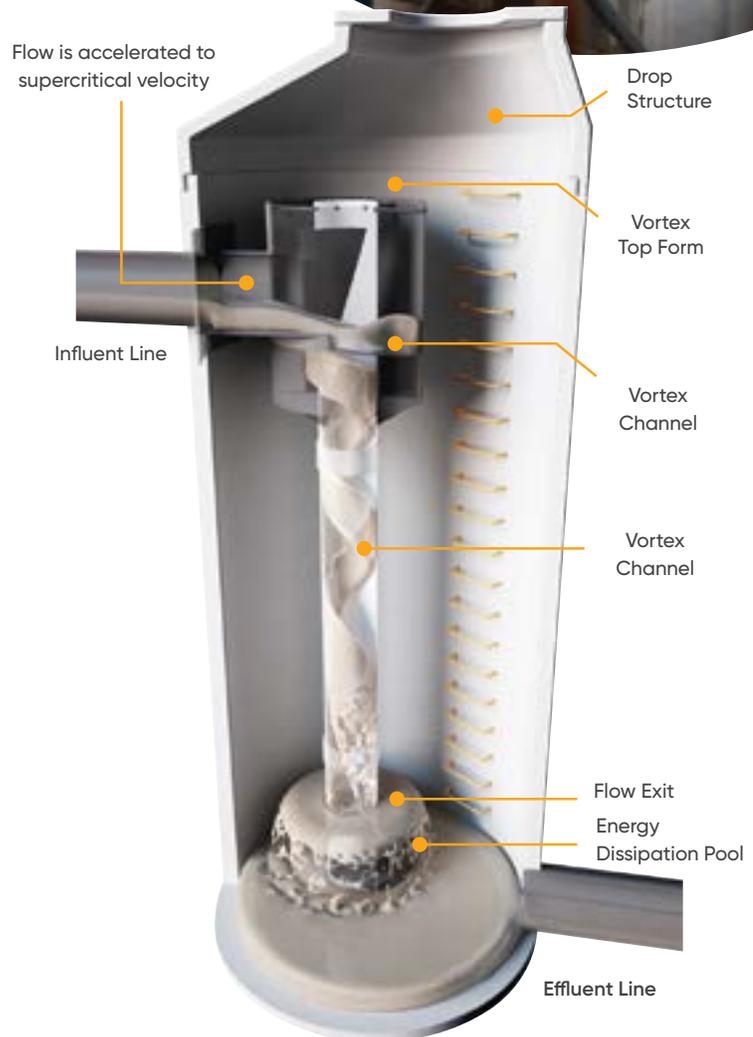
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Vortex Flow unit was installed in the City of Hamilton, Ontario in 2020

storm sewer system has deep drops, then the Vortex would be ideal to provide energy dissipation. Even in storm water applications the Vortex will oxygenate the flow going through it, resulting in storm water effluent that is high in dissolved oxygen, thus reducing any threat to aquatic life in our waterways.

The City of Toronto was the first to recognize the benefits of Vortex Flow in storm sewer applications. In July 2016, the city installed two very large units inside the same drop structure at Earl Bales Park. Both units were designed for a peak flow of 5,000 litres per second (with a 15% safety allowance above that) and both units carried storm water only. However, the drop structure was 12 metres deep, and with that size of flow, there was a tremendous amount of energy that would need to be dissipated. No product does this better than Vortex Flow. Moreover, you don't have to worry about starving your fish of oxygen.

If you are a municipality with deep drop structures, dealing with the problems associated with them but tired of trying expensive options that just don't work, you should try the only permanent solution out there. If you're ready to solve your drop structure problems once and for all, give us a call. We can design a Vortex Flow that will solve all of your problems in one shot, guaranteed!



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