



**Hydro**  
International 

The logo graphic for Hydro International consists of a stylized, blue, wavy line that resembles a water wave or a drop, positioned to the right of the company name.

**Hydro Vortex Drop™ Shaft**

Turning Water Around ...®

# Hydro Vortex Drop™ Shaft

The Hydro Vortex Drop™ Shaft, is a self activating energy dissipation system with no moving parts, designed to safely drop water or sewage from virtually any height in order to protect the infrastructure from noise, vibration, and damage.



## Odor & Corrosion Control

The Hydro Vortex Drop™ Shaft has a specially designed air intake component (Air Switch) that enables air to be continually drawn through the downdraft as flows spiral down the drop pipe ensuring that air is entrained in the wastewater to oxidize odorous gases thereby preventing the release of noxious gases that would otherwise cause odor and corrosion problems. The Air Switch also allows the to operate in the Air Entrainment Mode over a wider range of flows than conventional drop shafts.

This in combination with the low pressure core, excellent flow control and mixing capabilities of Hydro's unique Energy Dissipation Unit also ensures complete intermixing and re-entrainment; leading to further rapid oxidation of any odorous compounds.

## Erosion Control

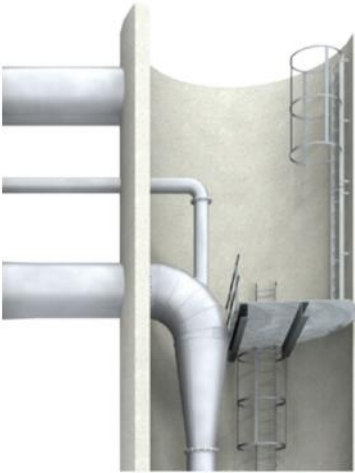
The Hydro Vortex Drop™ Shaft is specifically designed to minimize erosion and damage of your expensive structures. Using the latest computational fluid dynamics backed up with good old fashioned physical testing, the destructive forces associated with cavitation and water hammer have been eliminated.

## Cost Savings

The Hydro Vortex Drop™ Shaft can often be easily retrofitted into an existing chamber and its integrated access and small pipe sizes reduce excavation cost, shaft diameters and the need for a separate access shaft. The system also benefits from a compact and simple to construct inlet chamber with no complicated curves or benching required.

## Small Pipe Sizes

Traditional vortex drop shaft designs require an air core to operate safely and prevent damages associated with water hammer. The Hydro Vortex Drop™ Shaft uses a unique Air Switch to enable a safe transition into the full pipe mode where it can operate at maximum capacity without the need for an air core. This allows it to accommodate as much as three times the flow of a traditional solution in the same pipe size.



*Integrated access.*



*Prefabricated stainless steel construction.*



*Adaptable design solution.*

## Construction

The Hydro Vortex Drop™ Shaft is constructed from durable and corrosion resistant stainless steel. Furthermore the inlet bend, reducer and Energy Dissipation Unit are treated with an Irathane coating to protect them from wear and ensure an extremely long component life.

## Installation

The Hydro Vortex Drop™ Shaft is easy to install as it does not require complicated concrete work or approach channels. All components are prefabricated and use bolted connections, minimizing the installation time and cost.

## Easy Access

The fully enclosed nature of the Hydro Vortex Drop™ Shaft allows access to the base of the drop structure in the same chamber as the flow. This aids any maintenance commitment and simplifies visual inspection.

## Flexible Design

The Hydro Vortex Drop™ Shaft is ultimately configurable and can be designed to suit either the smallest flow or the longest drop. It's compact nature means that two or more shafts can be fitted into the same chamber further enhancing its versatility and ensuring best solution can be found for each installation.

## Advantages

- No auxiliary air and/or maintenance shafts needed
- No requirement to keep an air core within the drop pipes so pipe sizes are significantly reduced
- Safe, controlled, efficient
- Self-activating with no moving parts
- Flows in excess of 5,000l/s in a single pipe
- A multiple pipe arrangement can accommodate higher flow rates
- Vertical drops in excess of 100m

## Applications

- Controlled drop of sewer flows into deep tunnels
- Energy dissipation of dropping water
- Flood control
- Combined sewer systems
- Stormwater systems

