For Data Center and Control Room Applications

- Nearly zero wetting
- No costly clean up or equipment replacement
- Sustainable design
- Quick system recharge, minimal downtime
- No need for assurance of tight room integrity
The Victaulic Vortex Fire Suppression System is built on more than 85 years of Victaulic innovation and product development experience and provides the best capabilities of both water mist and inert gas systems.

The homogeneous mixture of water droplets and nitrogen gas is discharged with enough energy to overcome the drag effect that has limited the effectiveness of traditional water mist systems.

Fire suppression for data centers and control rooms
- Minimal water presence
- Simple, modular system design for easy installation and maintenance
- Easy portability for facility relocations or renovations

---

The Victaulic Difference

“In mission critical applications like data rooms and server spaces, the ability to provide fast, dependable fire suppression without any appreciable water presence or toxic chemicals is fantastic. At Bluehost, we are all about innovative technology. We look for flexible systems that can accommodate our specific needs, both in protecting equipment and people, as well as getting back up and running fast after an event. The Victaulic Vortex system offers all that and more—green technology, minimal water presence, effortless clean-up, economical recharge, immediate activation, no need for room integrity—this system simply has it all.”

– MATT HEATON, OWNER, BLUEHOST
Active release system

The Victaulic Vortex system utilizes an active release system to discharge nitrogen upon activation.

- Simple, low-maintenance piping
- Easy access to cylinders for refill and inspection
- Scalable, expandable design
**Victaulic Vortex** hybrid technology extinguishes via heat absorption and oxygen deprivation with minimal water presence.

### 1/4 gallon

**SPARSE WATER PRESENCE**
As little as 1/4 gallon of water per minute per emitter utilized to suppress fires.

### 40 mph

**EMITTER/DISCHARGE**
High velocity and low pressure creates a uniform blend of water and nitrogen; water is introduced to a jet stream of nitrogen at supersonic speed, then delivered with the nitrogen into the protected space at 40 mph.

**ROOM INTEGRITY**
Unlike other systems, maintaining room integrity is not essential; fires are extinguished in open, naturally ventilated areas.

**SUB-FLOORS**
Sub-floor spaces easily protected by scalable, zoned system design.
PROTECTION WITHIN ENCLOSURES
Even small, smoldering fires within racks are detected and extinguished with negligible water exposure for components or hardware.

ZONEABLE AND SCALABLE
System activation is immediate when sensors detect smoke or heat — there is no delay in activation to evacuate personnel to avoid a toxic environment.

COMPATIBLE WITH SECURITY SYSTEM
The system is compatible with facility fire protection systems providing greater design flexibility in both retrofit and new construction.

nearly zero wetting

sustainable design

100% GREEN DESIGN
Made entirely of non-toxic agents — personnel are safe even during activation; reduction of oxygen in the space is at levels within safe breathing tolerances.

www.victaulic.com
The system uses **97% less water** than high-pressure water mist systems. For example, a space the size of two football fields can be protected by a system that activates immediately to extinguish a high hazard fire with **around three gallons of water in less than four minutes**.

Unlike other combined agent systems, the Victaulic Vortex hybrid system utilizes both nitrogen and water as **complementary extinguishing agents**.

For smaller fires, the Victaulic Vortex system utilizes nitrogen as the primary extinguishing agent, reducing the oxygen level in the space to a breathable level, where combustion cannot be sustained.

In larger fires, the water mist is more effective, cooling the fire by absorbing the heat and reducing the available oxygen. In fact, the heat-absorbing water droplet surface area is **90 times greater** than that of any standard sprinkler system, providing maximum heat absorption efficiency.
**Environment Impact Comparison**

<table>
<thead>
<tr>
<th>Agent</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Victaulic Vortex Fire Suppression System</strong></td>
<td>A hybrid system utilizing inert clean agent gas and water. The ~ 10 μm sized water droplets remove the heat in large fires and aid in the radiative and convective heat blocking. The nitrogen extinguishes small fires in large rooms in naturally ventilated environments.</td>
</tr>
<tr>
<td><strong>Intermediate Pressure Water Mist and Sprinkler Systems</strong></td>
<td>Larger size water droplet are used to soak the fuel source. Steam generated from the fire aids in the radiative and convective heat blocking. Large droplet size and momentum generally make these less efficient for shielded fires.</td>
</tr>
<tr>
<td><strong>High Pressure Water Mist</strong></td>
<td>Water extracts heat from the fire. Steam generated from the fire aids in the radiative and convective heat blocking. Momentum is generally lost within a short distance of the nozzle. Most efficient for large fire extinguishment.</td>
</tr>
<tr>
<td><strong>Inert Clean Agent Gases</strong></td>
<td>Rely primarily on oxygen reduction. Limited thermal cooling and no reduction of radiative or convective heat transfer. Fuel is not cooled and re-ignition from hot objects is possible.</td>
</tr>
<tr>
<td><strong>Halogenated Agents</strong></td>
<td>Rely on flame temperature reduction due to the thermal characteristics of the agent or disruption of the combustion process. No reduction in radiative or convective heat transfer and the fuel is generally not cooled leading to possible reignition.</td>
</tr>
</tbody>
</table>

**Water Characteristics Comparison**

<table>
<thead>
<tr>
<th>Agent</th>
<th>Flow, GPM per Emitter, Nozzle or Sprinkler</th>
<th>Drop Size, μm</th>
<th>Operating Pressure, PSig</th>
<th>Velocity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Victaulic Vortex Fire Suppression System</strong></td>
<td>0.26</td>
<td>&lt;10</td>
<td>25</td>
<td>High</td>
</tr>
<tr>
<td><strong>Intermediate Pressure Water Mist</strong></td>
<td>3-5</td>
<td>400 - 1000</td>
<td>350</td>
<td>High</td>
</tr>
<tr>
<td><strong>High Pressure Water Mist</strong></td>
<td>~ 8*</td>
<td>50 - 100</td>
<td>1500 - 2500</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Sprinkler Systems</strong></td>
<td>&gt;25</td>
<td>&gt;1000</td>
<td>&gt;20 min</td>
<td>Moderate</td>
</tr>
<tr>
<td><strong>Inert Gases</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>2500</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Halogenated Agents</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>360</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*Dependent upon system design*
When the Zappos Company needed a new fire suppression system to protect its data center in their Louisville, Kentucky facility, they turned to Midwest Fire Protection. Midwest chose to install the Victaulic Vortex Fire Suppression system, in order to avoid large amounts of water around the computer equipment as well as to fulfill a need to suppress fires out in the open, ventilated space and inside the electrical cabinets.

The environmentally-friendly Victaulic Vortex system was also desired by the Zappos Company for its zero emissions and absolute lack of toxic chemicals or agents. The project was completed in 2009.

**ENGINEER/CONSULTANT**
Meyer General Contracting, Inc.

---

This data center facility, located approximately five miles from the Golden Ears Bridge, is operated by Transroute, Canada and supports the bridge’s automated toll equipment. ASD Technologies selected the Victaulic Vortex™ Fire Suppression system because it can adequately suppress fires which may start inside computer rack cabinets with minimal water damage.

Further, since the Victaulic Vortex system only deploys water and nitrogen, it is a 100% green system which was also a requirement for this project.

Another key Victaulic Vortex system benefit is its ability to be installed as a stand-alone system, operating independently of the fire safety systems for the surrounding building. The project was completed in 2010.

**ENGINEER/CONSULTANT**
Novota Group