



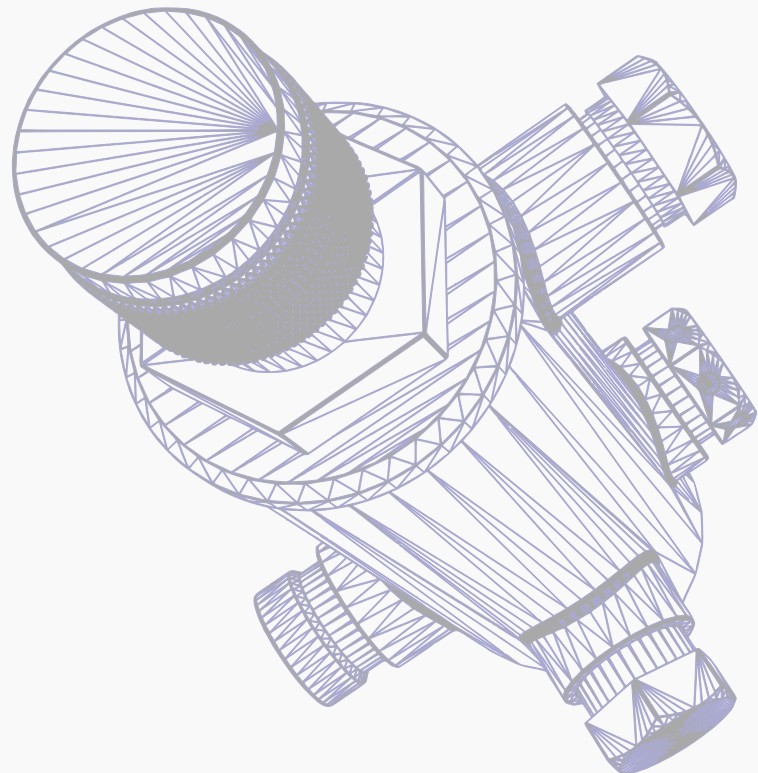
# DIRECT AGENT RELEASE SYSTEM





**FireSci™**

**MICRO SUPPRESSION SYSTEMS**



# Micro-Suppression Systems

## Smart Solutions for Safer Tomorrows

In the realm of risk management, every decision counts. FireSci's micro-suppression fire system doesn't just mitigate potential losses; it transforms fire protection into a strategic advantage. Our system's sleek and compact installation design minimizes disruption, making it an ideal solution for businesses seeking to fortify their fire safety measures without undergoing extensive structural modifications. The ease of integration into your existing infrastructure further streamlines the installation process, saving you valuable time and resources.

# Direct Agent Release (DAR) System



PN: 3DARHFC/FK5  
PN: 6DARHFC/FK5  
PN: 12DARHFC/FK5  
PN: 18DARHFC/FK5



# Direct Agent Release System

## How DAR Responds to Fire

### Thermal Detection Through HST Rupture

The DAR system does not rely on electrical sensors or human intervention; instead, it uses heat detection via the Heat Sensing Tubes (HST) itself.

If a fire starts within the protected enclosure, the surrounding air temperature will rise, and the tube will respond by softening and ultimately rupturing at the point of highest temperature. This temperature-dependent rupture process is reliable, ensuring the system only activates in response to actual fire conditions.

### Immediate Clean Agent Release

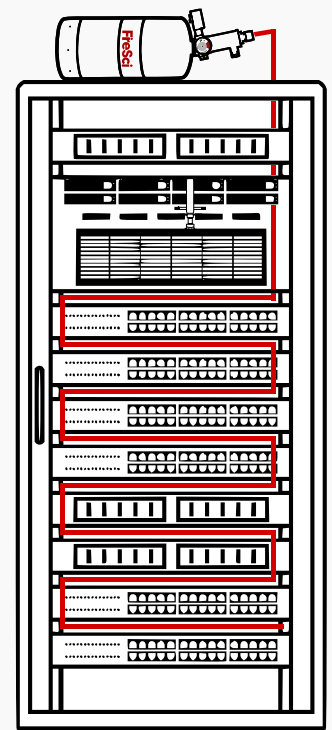
Once the HST ruptures, the clean agent is instantly released through the rupture point directly onto the flames and around the surrounding area. By being deployed at the source of the heat, the agent efficiently suppresses the fire by cooling the combustion area and disrupting the fire triangle (fuel, heat, and oxygen).

This rapid, targeted release ensures that the fire is quickly suppressed, preventing it from spreading to other components within the enclosure.

### Cooling and Fire Suppression Mechanism

The clean agents used in the DAR system, such as Fk5-1-12 and HFC227ea (UL/FM), are highly effective at extinguishing fires by removing heat. They work by absorbing thermal energy from the flames, cooling the combustion process, and rapidly reducing the temperature to below the ignition point.

Additionally, these agents are non-conductive and non-corrosive, so they can be safely used in electrical environments without damaging equipment or interfering with electronic components.



# Direct Agent Release System

FIRESCI'S Direct Agent Release System (DAR) is a specialized fire suppression solution designed for rapid, localized fire suppression within compact, enclosed areas such as electrical cabinets, server racks, and other high risk Class C equipment housings. This system works by automatically detecting and extinguishing fires at their source, ensuring minimal damage and quick containment

## Key Components of the DAR System

### Pressurized Heat Sensing Tube (HST)

The DAR System uses a durable, flexible polymer tube (UL) that is pressurized with clean agent, typically FK5-1-12 or HFC227ea. These agents are non-toxic, residue-free, and safe for use around sensitive equipment.

The tubing is pressurized to 195 psi / 13 BAR, which keeps the clean agent contained and ready for discharge in the event of a fire.

### Tube Placement

The pressurized polymer tubing is strategically coiled or laid out inside the protected enclosure around key heat-generating components. These are the components most likely to overheat and catch fire, such as circuit boards, power supplies, or other electronic equipment.

The tube's flexible design allows it to be easily installed around and near high-risk areas within the enclosure.



PN: OCI 9901- R6-142  
PN: OCI 9901- R6-191

- Continuous Linear Pneumatic Heat Detection Device
- Humidity and Vibration Resistant
- 150mm Bend Radius
- Exterior Diameter - 6mm
- Interior Diameter - 4mm
- Operating Pressure 195 psi / 13 BAR

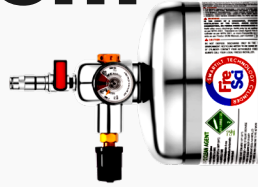
### UL 521 Temperature Rating

109° C	<b>Intermediate</b>
142° C	<b>High</b>
191° C	<b>Very High</b>



# Direct Agent Release System

## Key Features of Our Cylinders



### Material and Construction

Each cylinder is made from high-grade stainless steel, providing exceptional resistance to corrosion, environmental wear, and high-pressure conditions.

Machine-welded construction ensures uniform strength across the cylinder body, enhancing its durability and reducing the risk of failure under extreme conditions.

### Operating and Testing Pressure

Operating at a standard pressure of 195 PSI, the cylinders are optimized for efficient fire suppression performance.

To ensure safety and reliability, every cylinder undergoes rigorous testing at an impressive 600 PSI, exceeding operational demands and safety benchmarks. Operating at a standard pressure of 195 PSI, the cylinders are optimized for efficient fire suppression performance.

### Design and Finishing

Cylinders feature a convex bottom with a cylinder heel, providing stability and ease of installation in various setups.

Each cylinder is equipped with aluminum-engraved labels, offering durable, fade-resistant identification for regulatory and maintenance purposes.

### Regulatory Compliance

**UN Certification:** Complying with stringent transportation and handling requirements for pressurized containers.

**TPED Certification:** Meeting European standards for transportable pressure equipment, ensuring safety and quality under extreme conditions.

Tested as per LPS<sup>™</sup> 1666\*. Tested as per DOT/FAA/AR-01/37\*. Tested as per EN/ISO 11925-2\*.

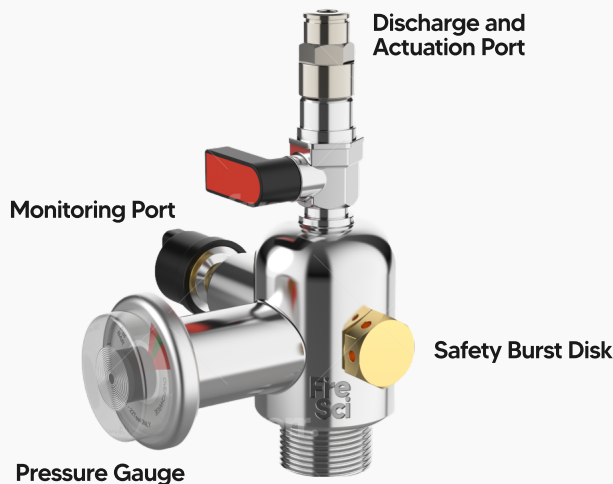
*\*Some exclusions apply*



# Direct Agent Release System

## Key Features of Our Stainless Steel Valve

The stainless steel valve used in our DAR system is a fail-safe, highly durable valve designed specifically for environments that demand robust and reliable fire suppression. Crafted with no moving parts, this chromed valve is engineered for simplicity, which enhances its reliability in harsh or remote locations. The valve is capable of withstanding pressures up to 41 BAR/600 psi and meets UN, ISO, and DOT standards, ensuring it performs effectively even under challenging conditions.



### Stainless Steel Construction

Constructed from durable stainless steel, the valve resists corrosion and is ideal for challenging environments, whether due to humidity, temperature extremes, or exposure to chemicals. The chrome finish adds an extra layer of protection and aesthetic quality.

### No Moving Parts

The valve's unique design eliminates moving parts, reducing the risk of mechanical failure. This is particularly advantageous for high-stakes environments that require autonomous functionality and minimal maintenance, as the valve remains reliable over long periods.

### Safety Burst Disk

Integrated with a safety burst disk, the valve is engineered to release pressure safely if it exceeds operational limits, providing additional protection for both the equipment and surrounding areas.

### Pressure Gauge and Monitoring Port

The valve includes a pressure gauge, allowing for easy monitoring of the system pressure to ensure optimal performance. It also has a dedicated monitoring port, which simplifies system checks and aids in maintaining regulatory compliance.



# Direct Agent Release System

## Key Features of Our Universal Bracket

Our Universal Bracket in FIRESCI's fire suppression systems is a versatile and sturdy component designed to securely hold cylinders ranging from 3 lbs to 18 lbs in size, including both standard and SMARTILT™ versions. Constructed from stainless steel, this bracket provides exceptional durability and resistance to corrosion, making it suitable for various environments where long-term reliability is essential.

### Adjustable Design

The universal bracket is adjustable, accommodating FIRESCI's full range of cylinder sizes (3 lbs, 6 lbs, 12 lbs, and 18 lbs). This flexibility ensures compatibility across different setups and cylinder requirements, enabling efficient protection in diverse applications.

### No-Drill Option

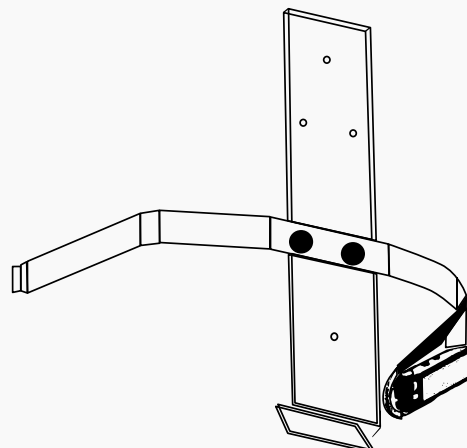
For installations that require non-invasive mounting, the bracket includes a non-drill type option. This version allows for secure cylinder attachment without the need for drilling or altering the mounting surface, preserving the integrity of protected areas.

### Enhanced Stability

The robust stainless steel construction provides stable, secure mounting for the cylinder, even in environments with high vibration or movement. This stability is critical for maintaining the integrity of the fire suppression system under various conditions. The robust stainless steel construction provides stable, secure mounting for the cylinder, even in environments with high vibration or movement. This stability is critical for maintaining the integrity of the fire suppression system under various conditions.

PN: OCI-10130-FS

PN: OCI-10131-FS





# Direct Agent Release System

## System Applications

### Electrical Panels

The DAR system is perfect for protecting electrical panels in industrial facilities and infrastructure hubs. With its heat-sensitive tubing (HST), the DAR system detects and suppresses fires caused by electrical faults, short circuits, or overheating components directly at the source, minimizing damage and downtime.

### Wind Turbines

Wind turbine nacelles house critical electrical and mechanical systems that are prone to overheating or sparking. The DAR system is compact and ideal for protecting these confined enclosures, ensuring fires are quickly suppressed without the need for extensive cleanup or operational disruptions.

### CNC Machines

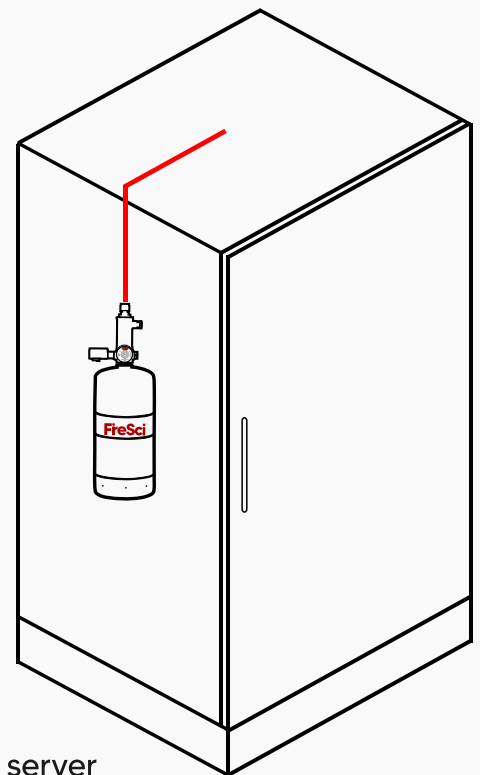
CNC machines in manufacturing settings often operate at high speeds and temperatures, making them susceptible to fires caused by oil mist, chips, or overheated components. The DAR system's localized fire suppression ensures fires are extinguished immediately within the machine housing, keeping workers and equipment safe.

### Server Racks

The DAR system is an excellent solution for safeguarding individual server racks in data centers or office environments. It provides targeted suppression for fires caused by overheating hardware, power surges, or cable faults, protecting sensitive electronics and preventing data loss.

### Control Panels

Control panels used in industrial automation or manufacturing processes require reliable fire suppression to mitigate the risks of electrical fires. The DAR system's heat-sensitive tubing ensures quick and efficient fire suppression within the enclosure, reducing downtime and safeguarding critical operations.



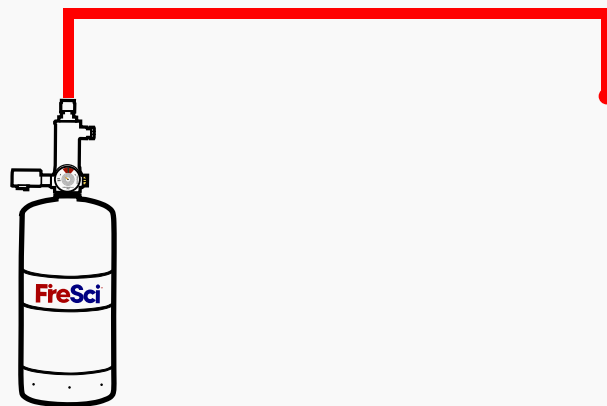
# Direct Agent Release System

## System Configurations and Components

FIRESCI's DAR system includes multiple configurations, allowing customizations to meet varied protection needs and spatial constraints.

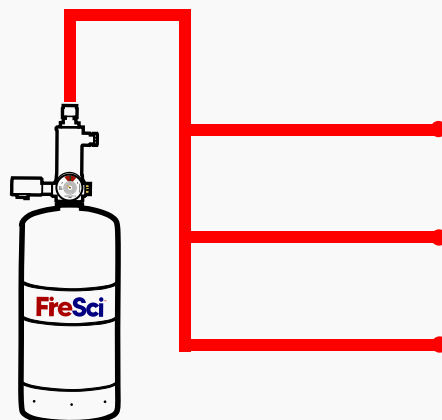
### One Cylinder with One HST

Considered to be the standard configuration for DAR systems, this simple, yet effective setup is ideal for most applications.



### One Cylinder with Complex HST Runs

Designed for intricate installations where there are tight, confined spaces below the minimum bent radius of a standard heat-sensing tube. This configuration is particularly effective for protecting compact, complex, enclosures by allowing the tube to navigate intricate spaces, ensuring total fire coverage across all high risk components.



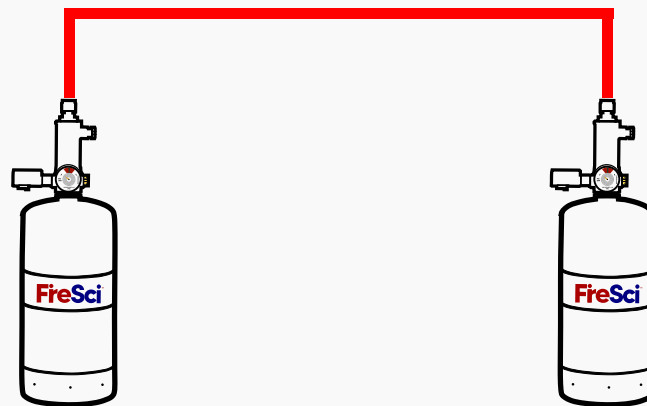
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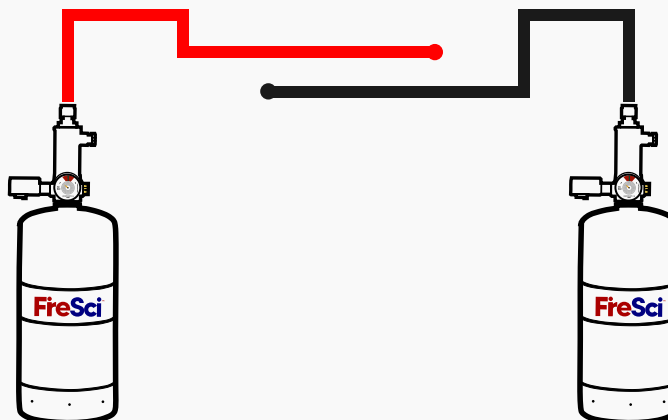
### Two Cylinders with One HST

Designed to maximize coverage in larger spaces using smaller cylinders that fit into tight or constrained spaces.



### Two Cylinders with Two HST

Enables a dual system approach: establish a main and reserve system or a two-stage discharge using either the same agent or different. This setup ensures uninterrupted fire suppression capabilities even in complex or extended fire events, making it ideal for critical infrastructure requiring sustained protection.



# FireSci™

MICRO SUPPRESSION SYSTEMS

SMART SOLUTIONS FOR  
SAFER TOMORROWS.



## Orbis Group LLC.

Address: 945 Concorde Street, #1210  
01701, Framingham, MA,  
United States

Phone: +1 (508) 715-3456

E-mail: [sales@firesafetysci.com](mailto:sales@firesafetysci.com)

Web: [www.orbisfire.com](http://www.orbisfire.com)  
[www.microsuppression.com](http://www.microsuppression.com)



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