

# INTERCEPTOR<sup>®</sup> **HRD**™

High Rate Discharge  
Explosion Suppression System

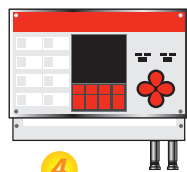




## EXPLOSION SUPPRESSION

The **INTERCEPTOR<sup>®</sup>-HRD<sup>®</sup>** Explosion Suppression System is designed to provide an active method to protect process system equipment from a dust explosion hazard. The principle of operation for the Interceptor<sup>®</sup>-HRD<sup>™</sup> system is detection of the pressure rise during the initial stage of an explosion, followed by fast injection and homogeneous distribution of an extinguishing agent into the protected vessel. The chemical suppression system consists of a controller, pressure or optical detectors, and the high rate discharge (HRD) bottles.

As a deflagration develops, the pressure inside the vessel will begin to build rapidly. The DeTex Explosion Pressure Detector will detect the rate of pressure rise over a certain time period and activate the High Rate Discharge bottles. Once activated, the HRD bottles will disperse suppressant into the protected vessel inhibiting the explosion from further developing, thus reducing the pressure and preventing any vessel breach.

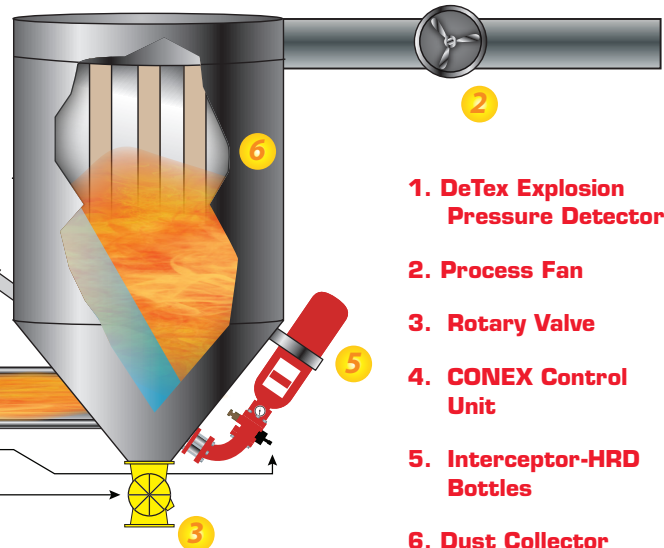


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1. DeTex Explosion Pressure Detector
2. Process Fan
3. Rotary Valve
4. CONEX Control Unit
5. Interceptor-HRD Bottles
6. Dust Collector

## Detection/Controls:

Explosion suppression system controls must be able to reliably detect, evaluate, and activate in milliseconds to properly suppress a dust explosion at an early stage. The CONEX Control Unit accomplishes this goal with a fast acting processor and multizone interface. When paired with the DeTex Explosion Pressure Detector, the CONEX Control Unit provides one of the most advanced explosion detection systems on the market.

Explosion detection is achieved by the CONEX Control Unit using programmed algorithms that analyze the instantaneous pressure in the protected vessel with relation to the pressure raise over time. As a result, the controller can adjust the activation point as slight process fluctuations occur, essentially eliminating false activations.



## Features and Benefits:

### Flame and Particulate Retention

Ideal for processes handling toxic materials, indoor applications, or equipment that cannot be vented to a safe area.

### Advanced Pressure Detectors and Controls

Dynamic pressure detectors can adjust the activation point as process conditions slightly vary, essentially eliminating false activations.

### Micro Gas Generator (MGG) Actuator.

The Micro Gas Generator (MGG) actuator allows for rapid, reliable deployment of the chemical suppressant. The MGG has an extended service life resulting in lower maintenance costs.

### Integrated OSHA Lockout.

Incorporated OSHA lockout allows for safe and easy securing of the HRD bottles, limiting process downtime during plant maintenance.

### Suppression Agents

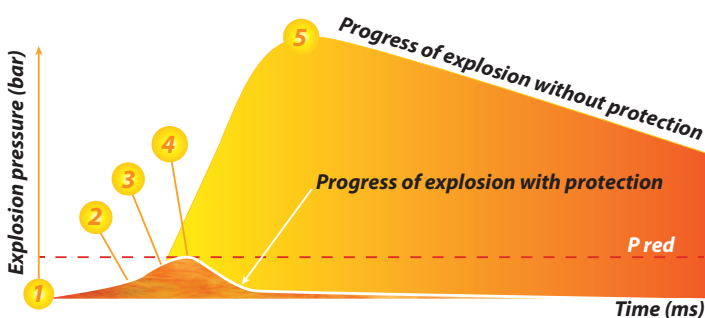
A variety of suppression agents, including Sodium Bicarbonate and Furex, are available to handle class St. 1 or St. 2 combustible dust or hybrid mixture hazards.

### System Archiving

Independent archiving of data from the pressure detectors provides pressure readings and system event history.

### Battery Backup

A 24 hour battery backup ensures full explosion protection during potential power loss.



### Pressure of a Dust Explosion Event

1. Explosion Event Initiates
2. Detection of Explosion Event
3. Activation of Interceptor-HRD system
4. Pressure Reduced by Suppressant
5. Maximum pressure developed during an unsuppressed explosion

## Specifications

### CONEX Control Unit:

|                        |  |
|------------------------|--|
| Power                  | 85 to 265VAC   |
| Current Consumption    | 100 mA to 2.5 A                                      |
| Relay Outputs          | 6 Programmable Dry Contacts<br>(250VAC or 30VDC/10A) |
| Display                | 168 x 128 Pixel LCD Display                          |
| Battery Backup         | 24 hours   |
| Dimensions (H x W x D) | 12.45" x 14.0" x 6.45"                               |
| Environmental          | IP 65, 14° F to 122° F                               |

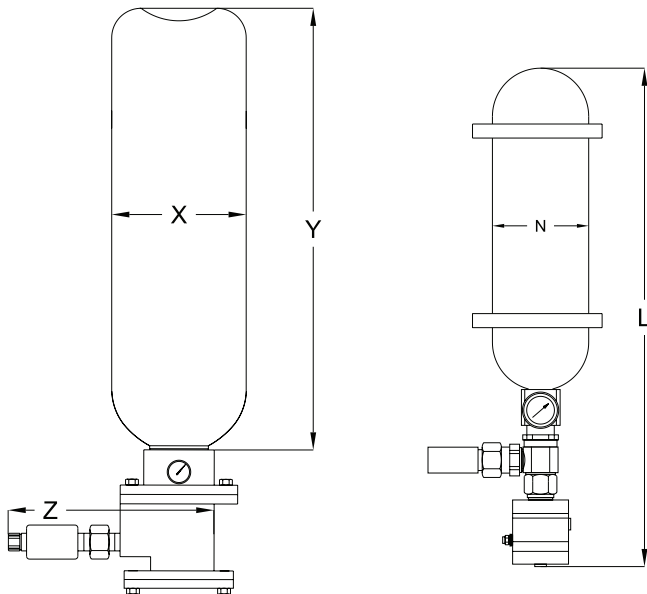
### DetEx Pressure Detector:

|                      |  |
|----------------------|--|
| Power                | 18 to 27 VDC   |
| Current Consumption  | 25mA (one sensing unit)<br>30 mA (two sensing units) |
| Detector Cord Length | 2 meters or 4 meters                                 |
| Detection Pressure   | 0.05 bar to 0.15 bar                                 |
| Environmental        | IP 65, 14° F to 185° F                               |

### LumEx Optical Detector:

|                      |                                 |
|----------------------|---------------------------------|
| Power                | 8 to 27 VDC                     |
| Current Consumption  | < 30 mA                         |
| Viewing Angle        | Approximately 110°              |
| Spectral Sensitivity | 780 to 1100nm (peak 950 nm)     |
| Sensitivity          | 1 to 100%                       |
| Environmental        | IP 65, -5° F to 175° F          |
| Dimensions:          | Cylinder (D = 2.45", L = 8.66") |

## Bottle Dimensional Drawings



| HRD Bottle               | 5 L  | 8 L   | 20 L | 20 L | 50 L | 50 L |
|--------------------------|------|-------|------|------|------|------|
| X (mm)                   |      | 140   | 229  | 229  | 229  | 229  |
| Y (mm)                   |      | 625   | 620  | 620  | 1410 | 1410 |
| Z (mm)                   |      | 283   | 283  | 290  | 283  | 290  |
| L (mm)                   | 700  |       |      |      |      |      |
| N (mm)                   | 140  |       |      |      |      |      |
| Volume [L]               | 5.34 | 8     | 20   | 20   | 50   | 50   |
| Extinguishing Agent [kg] | 4    | 6     | 16   | 16   | 35   | 35   |
| Pressure [bar]           | 120  | 55/30 | 55   | 55   | 55   | 55   |
| Valve size [inch]        | ¾"   | 3"    | 3"   | 4"   | 3"   | 4"   |