

FIKE EXPLOSION VENTING

**The Safest
Way to Vent
Explosions!**

Fike
CORPORATION

EFFECTIVE EXPLOSION VENTING

Making the right choices

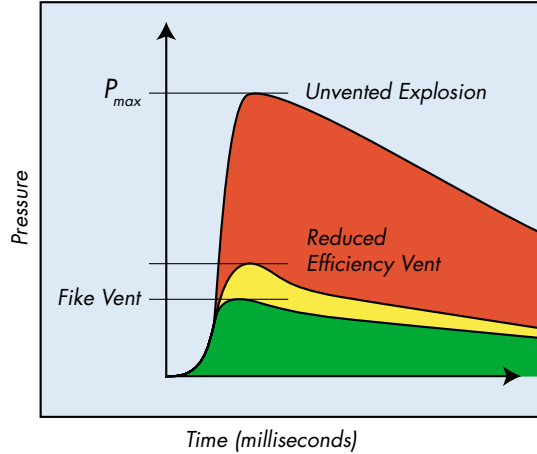
Explosion venting is the most widely accepted and utilized explosion protection strategy in use today. When properly applied, explosion venting will prevent the explosion from reaching potential maximum pressures of 100 psig, or higher. Various types of devices are used to provide explosion over-pressure protection, such as: certified rupture panels (explosion vents), uncertified venting panels including: hinged devices, shear type fasteners, home made venting panels, and more. Many of these devices offer some redeeming benefits, but in the end are not reliable as explosion protection options.

How do you know which device is right for you?

If you are considering the application of an explosion venting device, there are five important performance characteristics to examine. How does the device you are considering stack up?

- 1) **Venting Efficiency** - Efficient devices require less relief area and/or provide lower vented pressures (P_{red}).
- 2) **Certified Burst Pressure (P_{stat})** - Is the venting device tested and warranted to open at the same pressure every time?
- 3) **Opening Pattern** - Will it provide the same relief area every time?
- 4) **Reliability** - Will it operate properly when needed?

How do Fike Explosion Vents measure up?



Fike vents have a 100% venting efficiency, requiring the smallest possible relief area. The mass per area is less than 2.5 lbs/ft², as required to use NFPA 68 vent area correlations. In contrast, hinged devices do not meet this criteria, "A hinged vent closure results in a higher P_{red} (maximum pressure during venting)", "If the weight of a hinged closure is greater than 1.2 lb/ft² (5.9 kg/m²), its venting efficiency should be determined by test." - NFPA 68, 1998 Edition.

"In view of the reduced efficiency, of hinged enclosures, lightweight rupture diaphragms are recommended." - NFPA 68, 1998 Edition



Fike vents have certified burst pressures, assuring proper operation and performance.

Fike vents produce a controlled full opening, meeting the requirements of NFPA 68.

Fike vents deliver maximum service life under widely varying process operating conditions.

Fike vents are virtually maintenance-free, having no mechanical, moving parts.

Fike vents are "Fail Safe", and will provide relief at, or below, their rated burst pressure, even when damaged. *

Fike vents have all been dynamically tested and validated under full-scale explosion conditions.

* Subject to limitations set forth in Fike form CS7300

Explosion Venting Applications



Explosion vents are typically used to protect process equipment like dust collectors, cyclones, conveyors, bucket elevators, dryers, vacuum receivers, electrostatic precipitators, silos, storage bins, large pipes and ducting. If protected equipment is connected to other process equipment through pipes and ducts, the user may need to consider explosion isolation to prevent secondary explosions.

Fike Firsts... We invented it!

First to apply rupture disc technology as a means of deflagration venting.

1965

First to offer a commercially available explosion vent with a controlled opening pattern (U.S. Patent 4,067,154)

1977

First to offer vibration resistant "Core Filled" vents (U.S. Patent 4,662,126)

1987

First to develop the Variable Orifice Vent to reduce venting induced turbulence (U.S. Patent No. 4,777,974)

1988

First to offer explosion vents for hygienic service (U.S. Patent 4,821,909)

1989

First to conduct tests and publish results of commercially available explosion venting products in actual deflagration conditions (Journal of Loss Prevention Process Ind., 1991, Vol. 4, October)

1991

First to offer a multi-dome explosion vent to extend service life in process pressure cyclic conditions (U.S. Patent pending)

1998

EXPLOSION VENT SELECTION

Choosing the right Explosion Vent Model

CV

The Composite Vent covers most applications and provides an excellent service life for static to light pressure cycling conditions, partial vacuum conditions, and temperatures below 500°F. The CV meets all applicable requirements of NFPA 68.

Component Sheet C3741



CV-S

The Composite Vent with Support provides all the features of the CV, with higher vacuum capabilities, and may be the best choice when pressure cycles and/or equipment vibration are present.

Component Sheet C3745



CV-SF

The Composite Vent with Support Frame provides all the features of the CV, with higher vacuum capabilities.

Component Sheet C3742

Photo not shown

CV-H

The Composite Vent for Hygienic Service (shown with optional burst indicator) provides all the features of the CV and is used when a sanitary design is required, and no vacuum conditions exist.

Component Sheet C3746



CV-CF

The Composite Vent with Core Filling is recommended when pressure cycles and/or equipment vibrations are present.

Component Sheet C3743



V_{max}

The V_{max} is a single membrane vent that is provided when a sanitary design is required with vacuum service, or for applications involving severe cyclic, or pulsing, duty.

Component Sheet C3740



CV-I

The Composite Vent with Insulation provides all the features of the CV, with higher temperature capabilities.

Component Sheet C3744

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How do you size your venting device?

To assist you in calculating vent relief area and model selections, Fike offers free easy to use software, based on the latest NFPA 68 equations and guidelines (significant changes were made to the sizing equations). Use VentCalc™ to quickly reevaluate your existing applications as well as designing new ones. Fike explosion pro-

tection specialists can assist you with applications and interpretations of industry standards. Otherwise, the standards of application for explosion venting devices can be found in the NFPA 68, "Guide for Venting of Deflagrations", and VDI 3673, "Pressure Venting of Dust Explosions" (European Standard).



FIKE'S "TOTAL CONCEPT" APPROACH TO EXPLOSION PROTECTION

Fike's approach provides you with the protection options you need, based upon your specific process requirements and your protection objectives. Leading the industry in technology, we are continuously pursuing optimization of our protection strategies and developing new ones to meet our customer's needs. You can be sure of system reliability, compatibility, and effective explosion protection because Fike is the only "single-source" manufacturer in the world that can offer this comprehensive range of products and services:

Explosion Testing - A wide range of bench-scale, and industrial-scale tests to determine explosibility characteristics of process media, and to validate protection strategies,

Explosion Venting - Relieves explosion over-pressure conditions within process equipment, before destructive levels of pressure can be reached,

Explosion Isolation - Mechanical or chemical barriers to prevent the spread of explosions through interconnecting pipes or ducts,

Explosion Suppression - Detects and extinguishes the explosion in its very early stages, before destructive levels of pressure can be reached,

Field Service & Customer Training - Isolation and Suppression systems are active strategies that require periodic maintenance and inspection. Fike has the service capability to per-

form these functions for you, or a training option to qualify and certify your employees,

Engineering Workshops And Seminars -

An ongoing program to educate engineers, designers, and others in industry who are involved in, or concerned with, industrial process safety.

Other Fike products and services of possible interest:

Rupture Disc - A pressure relief device, typically applied to a closed chemical process, will open at a predetermined pressure and temperature to prevent the bursting or explosion of the process,

Fire Detection and Suppression Systems -

Automatic systems to detect and extinguish fires in controlled environments, or special hazard areas, such as control rooms, auxiliary power stations, chemical storage, etc. Typical agents used:

- CO₂
- HFC-227 ea
- Water Mist

Detailed information for all these solutions, and locations of our global sales and support organization, are available through our web site at www.fike.com. For your convenience you may call us directly at **(816) 229-3405**, or e-mail your requests to **fpssales@fike.com**.



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