

# SAFE PASSIVE FLAMELESS INDOOR EXPLOSION VENTING



**Interceptor®**  
Flameless Vent

**QR®**

# The Interceptor®-QR® is a NFPA compliant and FM Approved flameless venting device.

**Flameless vents are comprised of two parts, an explosion vent and a quencher.** The quencher is constructed of multiple layers of stainless steel mesh supported by a metal frame. Ignition inside a protected vessel causes pressure to build rapidly. The explosion vent is designed to relieve the pressure. Burning dust, flames, and hot gases all exit through the vent opening into the quencher. The quencher then takes over to absorb the heat from the flame and hot gases. The mesh acts as a heat sink to quench the temperature and break the chain reaction of the explosion. The flame is completely retained in the quencher making flameless vents safe for indoor use or in occupied work spaces.

**Flameless vents can be used on a variety of process equipment.** These vents are ideally designed to use on equipment located indoors since they eliminate the release of a flame ball. Flameless vents are ideal for pneumatic conveying equipment, dust collectors, bins, cyclones, bucket elevators, mills, silos, and dryers.



## Specifications

- ATEX approved to EN 16009 Standard
- FM Approved to 7730 Standard
- $K_{st}$  up to 300 bar·m/s
- $P_{red}$  up to 1.6 bar (23.2 PSI)
- Compliant to FM 7-76
- Compliant to NFPA 68
- Sizes from 8" to 32"
- Stainless steel construction
- Environmental temperature from -40°F to 140°F (-40°C to 60°C)

## Indoor Flameless Venting

Ideally designed to protect indoor equipment, the Interceptor®-QR® provides a passive solution to protect process equipment that cannot be safely vented or processes that shouldn't be suppressed

## Zero Downtime

The Interceptor®-QR® is designed to be a passive mitigation device. Once installed it needs very minimal maintenance and is considered a zero downtime solution. Easy refurbishment means you are up and running quickly if activated.

## FM Approved

The Interceptor®-QR® was the first flameless vent to pass the new FM Approval Standard 7730 for flameless venting. It has approvals for melting dust, non-melting dusts, and fibrous dusts. In addition to the FM Approval, the Interceptor®-QR® also has an ATEX approval.



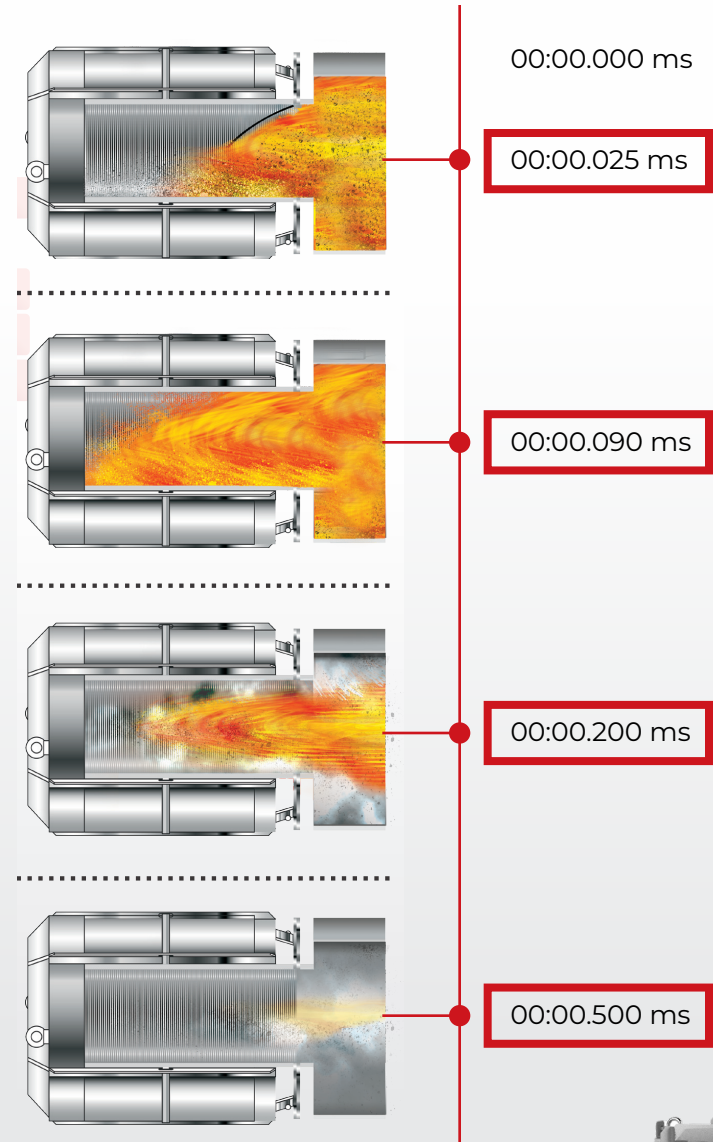
## OPTIONS AVAILABLE

- USDA Rupture Disc
- High Temperature Rupture Discs
- Dust Covers
- SRE Signaling Modules



# HOW THE INTERCEPTOR®-QR® WORKS

## TIMELINE OF PHYSICS AT WORK



The **Interceptor®-QR®** is comprised of two parts, an explosion vent and a quencher. The quencher is constructed of multiple layers of stainless steel mesh supported by an exoskeleton.

Ignition inside a protected vessel causes pressure to build rapidly. The explosion vent opens to relieve this pressure. Burning dust, unburned dust, flame, and hot gases all exit through the vent opening exactly in the same manner as would occur in a conventional explosion vent.

Unlike venting to atmosphere, however, the quencher takes over to trap the dust within the mesh and absorb the heat from the flame and hot gases. The mesh then acts as a heat sink to quench the temperature and break the chain reaction, effectively interrupting the explosion in midstream. As the hot gases contract, the

**The Interceptor®-QR®** acts as a vacuum breaker by allowing free entry of cool air. During a dust explosion, the flameball is at least 1500° Celsius, while the surface temperature of **The Interceptor®-QR®** typically stays under 100° Celsius. Dust and flame are completely contained, making **The Interceptor®-QR®** safe for indoor use in manned spaces without the need for ducts.



# Safe Passive Flameless Indoor Explosion Venting

## Features and Benefits

### Flame Arresting.

No flame escapes, providing a safe operating environment for personnel. Eliminates the possibility of a secondary ignition and subsequent explosion.

### Dust Retention.

Retains process product, removing the possibility of potentially toxic product entering the environment.

### Negligible Temperature and Pressure Rise.

Neither personnel nor the surrounding environment are adversely affected.

### Simple Economic Installation.

Single flange connection.

### Low Maintenance.

Minimal maintenance required.

### Stainless Steel Construction.

Corrosion resistant and suitable for food processing applications.

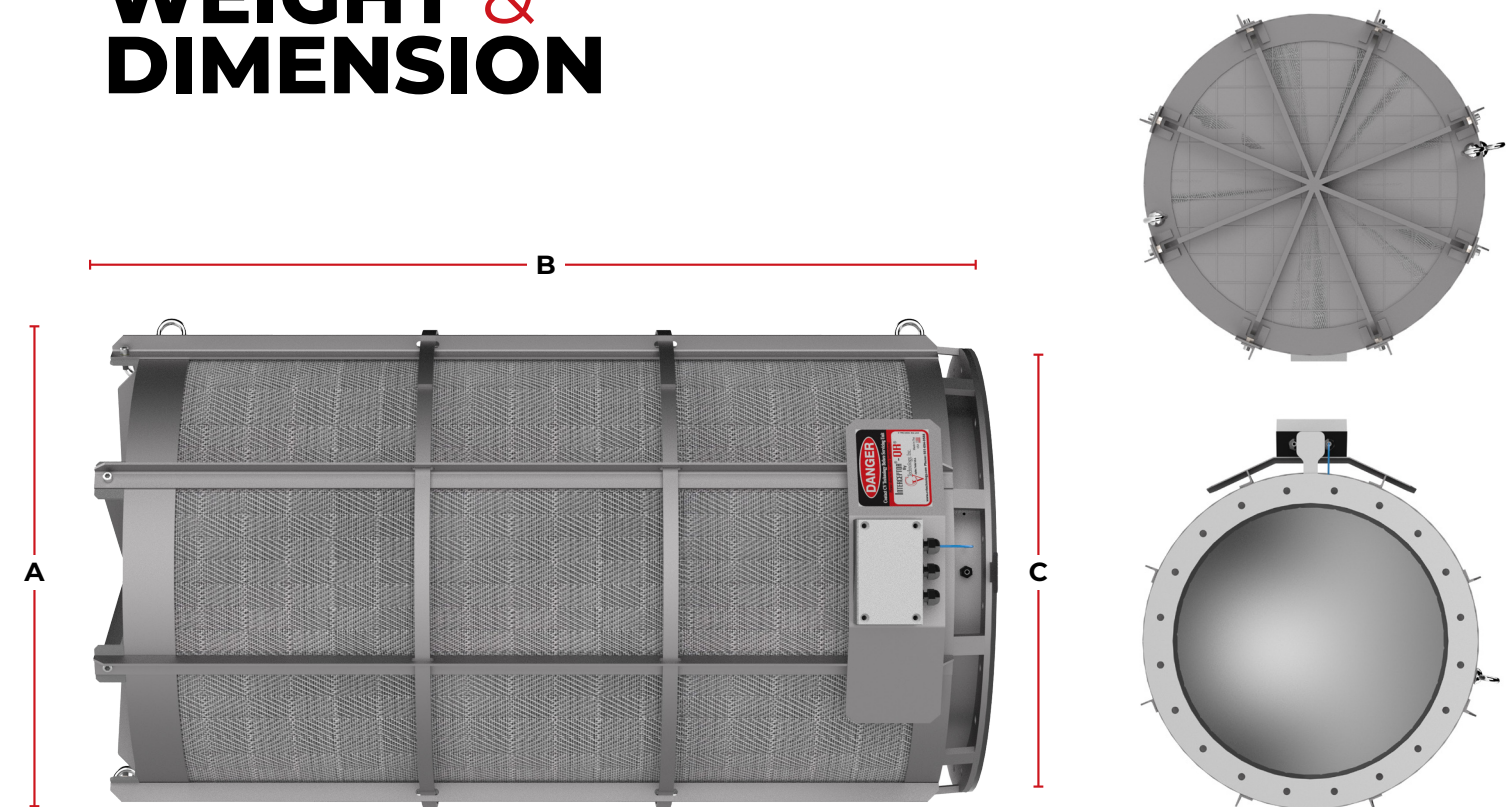
### Process Friendly.

If exercised, Interceptor®-QR® will not contaminate the customer process, eliminating extensive clean up.

### Economic Refurbishment if Exercised.

Interceptor®-QR® can quickly be refurbished and re-certified for use.

## WEIGHT & DIMENSION



Model	A	B	C	Weight
I-QR 8"	14.2" (360 mm)	21.5" (546 mm)	10.6" (269 mm)	60.0 lbs. (27.2 kg)
I-QR 12"	18.5" (470 mm)	21.5" (546 mm)	15.4" (391 mm)	75.0 lbs. (34.0 kg)
I-QR 16"	23.0" (584 mm)	36.0" (914 mm)	19.7" (500 mm)	140.0 lbs. (63.5 kg)
I-QR 20" L	26.5" (673 mm)	45.0" (1143 mm)	23.6" (599 mm)	215.0 lbs. (97.5 kg)
I-QR 24"	32.0" (813 mm)	57.5" (1460 mm)	27.6" (701 mm)	320.0 lbs. (145.2 kg)
I-QR 28"	35.0" (889 mm)	74.5" (1892 mm)	31.5" (800 mm)	495.0 lbs. (224.5 kg)
I-QR 32"	39.0" (990 mm)	86.5" (2197 mm)	35.4" (899 mm)	610.0 lbs. (276.7 kg)

# SPECIFICATIONS



<b>Compliance and Certifications:</b>	NFPA 68 ATEX, EN 16009 Certified FM Approved, FM 7730
<b>Materials of Construction:</b>	304 Stainless Steel
<b>Explosion Vents</b>	TLFG: Triple Layer Composite consisting of 304 SS (1.4301) and PTFE TLST: Triple Layer Composite consisting of 316 SS (1.4404) USDA, Ra = 0.8 µm, and PTFE
<b>Burst Pressures:</b>	Standard: 0.1 bar (1.5 PSI) Tolerance: (+/-15%) 0.085 to 0.115 bar (1.2 to 1.6 PSI) @ 22°C (72 °F) Optional: 0.2 bar (3.0 PSI) Tolerance: (+/-15%) 0.17 to 0.23 bar (2.5 to 3.3 PSI) @ 22°C (72 °F) Other CV Technology explosion vents may be used. Please contact the factory for alternatives.
<b>Vacuum Resistance:</b>	TLFG: - 1.00 bar @ 22°C (72 °F) TLST: - 0.65 bar @ 22°C (72 °F)
<b>Operating Pressure/ Vacuum:</b>	Maximum operating pressure 60% of rated burst pressure Maximum operating vacuum 90% of rated vacuum resistance
<b>Gasket Material</b>	Standard: White FDA Buna Nitrile USDA: White FDA 70 Silicone 3A Sanitary Other CV Technology gaskets may be used. Please contact the factory for alternatives
<b>Signaling:</b>	Magnetic Rupture Switch (MRS) – Integrated Burst Indicator
<b>Environmental Conditions:</b>	Ambient Pressure and Temperatures Ranges: -40°C to 72°C (-40°F to 160°F)
<b>Process Temperature:</b>	Standard specs for TLFG Other CV Technology explosion vents may be used. Please contact the factory for alternatives.
<b>Hazard:</b>	Kst ≤ 300 bar-m/s Maximum Pred = 1.6 bar (23.2 PSI) Compliant with Organic, Melting, Fibrous, Some Metal Dusts
<b>Safe Distances:</b>	8.2 ft (2.5 m) from personnel, 2 ft (0.6 m) from equipment Contact CV Technology for application safe distances



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