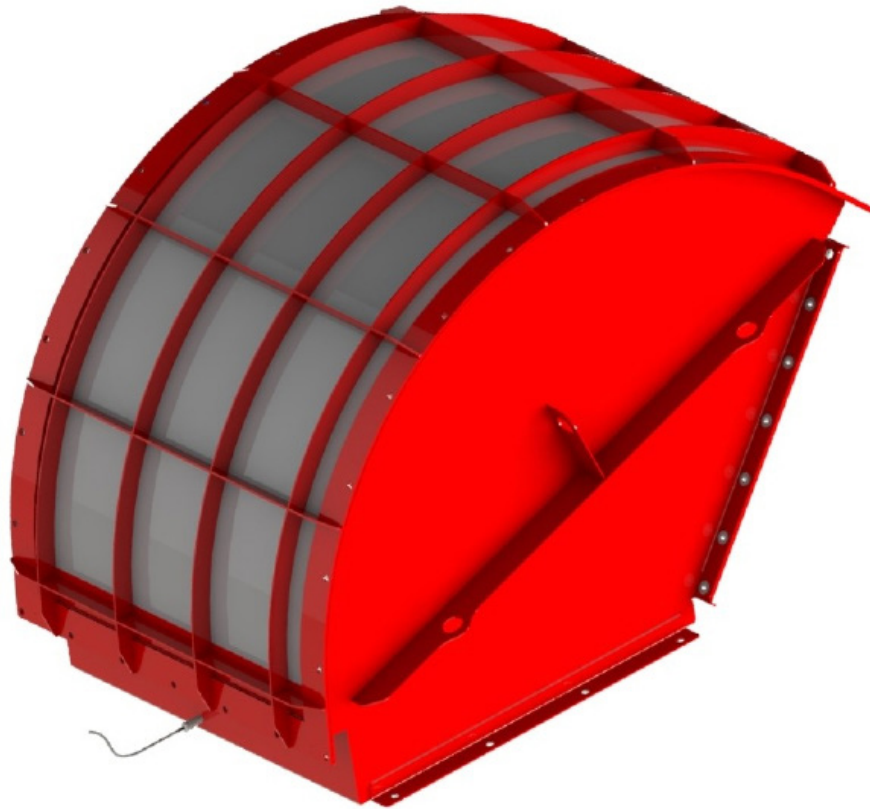


# VIGILEX®

SAFETY PROTECTION

By **stir**



NORTH AMERICA SUPPLEMENTAL MANUAL

FOR

VIGIFLAM FLAMELESS EXPLOSION VENTS (VQ)

2023 - FIRST EDITION - VERSION 0002

V0002: BRANDING CONSISTENCY UPDATE

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VIGIFLAM VQ SUP. MANUAL 2020 - FIRST EDITION - VERSION 0002  
 PRINT DATE: 1/2023

## SUPPLEMENTAL MANUAL INFORMATION

This manual is a supplement to the STIF installation, use and maintenance manual for flameless explosion vents. It has been compiled by Boss Products, LLC® for the North America market. The installer and end user must be familiar with both the STIF manual and the Boss Products supplement.

### SAFETY

#### ELECTRICAL SHOCK HAZARD

ONLY QUALIFIED PERSONNEL SHOULD INSTALL, MAINTAIN OR WORK ON THIS EQUIPMENT!

ALWAYS PERFORM WORK WITH THE POWER OFF.

#### ARC FLASH HAZARD.

APPROPRIATE PPE REQUIRED!

FOLLOW ALL REQUIREMENTS IN NFPA 70E

ALWAYS MAINTAIN PROPER CONVEYING VELOCITIES AS REQUIRED BY NFPA 652 & 654 FOR COMBUSTIBLE DUSTS.

#### WARNING!

DO NOT SUBSTITUTE COMPONENTS.

READ ALL DISCLAIMERS IN THE CORRESPONDING AIREX MANUAL.

IT IS THE INSTALLERS RESPONSIBILITY TO VERIFY THAT THEIR INSTALLATION COMPLIES

WITH REQUIREMENTS SET BY THE AUTHORITY HAVING JURISDICTION:

ALL NATIONAL, LOCAL, NEC, AND NFPA CODES AND/OR GUIDELINES.

## WARRANTY RETURNS

- Pre-qualified Warranty Returns must be shipped freight pre-paid and include an RMA approval document.
- The returned item will be inspected upon its arrival at Boss, Schertz Texas.
- If a replacement item is required before return and inspection, a new purchase order must be placed authorizing shipment of the replacement item.
- The new item will be invoiced and shipped FOB point of origin.
- If the returned item is determined to be under warranty and defective, it will be repaired or replaced at the seller's discretion and returned to the buyer FOB point of origin.

## WARRANTY

- Boss Products, LLC® warrants that the materials sold to a buyer is free from manufacturing defects at the time of shipment.
- Boss Products further warrants to the buyer that the product will remain free of defect for a period of 12 months of shipment on the condition that product has been maintained, installed and operated according to its intended use.
- Furthermore, this warranty will remain in force only as long as the following conditions are documented as being accurately applied.
- Installation and application in compliance of all applicable codes and standards, including National Electric Codes, NFPA recommendations & generally accepted good practice.
- A buyer will be responsible for remedies for defects caused by services not provided by Boss Products.

**THERE ARE NO WARRANTIES EITHER EXPRESSED OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH EXTEND BEYOND THE WARRANTIES SPECIFICALLY CONTAINED IN THIS DOCUMENT. BOSS PRODUCTS, LLC SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, DIRECT, INDIRECT OR OTHER DAMAGES ARISING UNDER ANY THEORY OF LAW WHATSOEVER.**



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## INTRODUCTION

Thank you for purchasing the Vigiflam VQ Flameless Explosion Vent. The Vigiflam is specifically designed to prevent flame discharge into vented areas. The Vigiflam VQ is ATEX certified and NFPA 68 compliant.

### REQUIRED ITEMS FOR NFPA 68 COMPLIANCE:

- Burst Sensor: Inductive
- VD/VL line of Explosion Panels

### COMPLEMENTARY PRODUCTS:

- NRV line of No Return Valves
- VF line of Explosion Isolation Devices
- HSAG02 line of High Speed Abort Gates
- FBS line of FireBreak Shutters
- FCS Spark Detection and Extinguishing Systems
- IMS line of Dust Monitoring (Emissions) Systems
- ECOBOSS® line of Energy Management Control Systems

## NFPA COMPLIANCE

### NFPA 652 – STANDARD ON THE FUNDAMENTALS OF COMBUSTIBLE DUST - 2019 EDITION

- 9.7.3 – Equipment Protection
  - 9.7.3.2 – Explosion protection systems shall incorporate one or more of the following methods of protection:
    2. Deflagration venting in accordance with NFPA 68
    3. Deflagration venting through listed flame arresting devices in accordance with NFPA 68

### NFPA 68 – STANDARD ON EXPLOSION PROTECTION BY DEFLAGRATION VENTING - 2018 EDITION

- 8.10 - VENTING INTERNAL TO A BUILDING WITH FLAME-ARRESTING AND PARTICULATE RETENTION DEVICE
- 8.10.1 - EXPECTED OVERPRESSURE SHALL BE COMPARED TO THE BUILDING DESIGN, AND BUILDING VENTING SHALL BE CONSIDERED TO LIMIT OVERPRESSURES
- 8.10.2 - THE DEFLAGRATION VENTING AREA PROVIDED FOR THE PROTECTED ENCLOSURE SHALL BE ADJUSTED TO COMPENSATE FOR THE VENTING EFFICIENCY AS DETERMINED BY TEST FOR TH DEVICE



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# VIGIFLAM VQ SPECIFICATIONS

## STANDARD FEATURES (ALL SIZES)

Heavy Duty Welded Steel Construction \* Epoxy Powder Coated Safety Red Finish

Use in a Wide Range of Process Equipment \* Simple Inspection Door \* No Maintenance Cost

Integrated Venting Panel with Signal Unit and Gasket \* Stainless Steel Mesh Screen \* ATEX Certification

Sizes	7" x 19" (170mm x 470mm)	11" x 18" (270mm x 458mm)	12" x 20" (300mm x 500mm)	12" x 24" (305mm x 610mm)	14" x 26" (350mm x 650mm)	19" x 23" (490mm x 590mm)	24" x 24" (610mm x 610mm)	23" x 36" (586mm x 920mm)	36" x 36" (920mm x 920mm)	44" x 44" (1130mm x 1130mm)
Certification	Certified ATEX EN16009-2011	Certified ATEX EN16009-2011	Certified ATEX EN16009-2011	Certified ATEX EN16009-2011	Certified ATEX EN16009-2011	Certified ATEX EN16009-2011	Certified ATEX EN16009-2011	Certified ATEX EN16009-2011	Certified ATEX EN16009-2011	Certified ATEX EN16009-2011
Pred Max	2.3 bar	2.3 bar	2.3 bar	2.3 bar	2.3 bar	2.3 bar	2.3 bar	2.3 bar	0.5 bar	0.5 bar
Pmax	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar
Vmax	74.1 ft <sup>3</sup> (2.1 m <sup>3</sup> )	116.5 ft <sup>3</sup> (3.3 m <sup>3</sup> )	141.2 ft <sup>3</sup> (4.0 m <sup>3</sup> )	176.5 ft <sup>3</sup> (5.0 m <sup>3</sup> )	215.4 ft <sup>3</sup> (6.1 m <sup>3</sup> )	275.4 ft <sup>3</sup> (7.8 m <sup>3</sup> )	353.1 ft <sup>3</sup> (10.0 m <sup>3</sup> )	529.7 ft <sup>3</sup> (15.0 m <sup>3</sup> )	741.6 ft <sup>3</sup> (21.0 m <sup>3</sup> )	741.6 ft <sup>3</sup> (21.0 m <sup>3</sup> )
Particle Size	6 µm	6 µm	6 µm	6 µm	6 µm	6 µm	6 µm	6 µm	6 µm	6 µm
Process Temperature	-76°F to +392°F (-60°C to +200°C)	-76°F to +392°F (-60°C to +200°C)	-76°F to +392°F (-60°C to +200°C)	-76°F to +392°F (-60°C to +200°C)	-76°F to +392°F (-60°C to +200°C)	-76°F to +392°F (-60°C to +200°C)	-76°F to +392°F (-60°C to +200°C)	-76°F to +392°F (-60°C to +200°C)	-76°F to +392°F (-60°C to +200°C)	-76°F to +392°F (-60°C to +200°C)
Ambient Temperature	-4°F to +140°F (-20°C to +60°C)	-4°F to +140°F (-20°C to +60°C)	-4°F to +140°F (-20°C to +60°C)	-4°F to +140°F (-20°C to +60°C)	-4°F to +140°F (-20°C to +60°C)	-4°F to +140°F (-20°C to +60°C)	-4°F to +140°F (-20°C to +60°C)	-4°F to +140°F (-20°C to +60°C)	-4°F to +140°F (-20°C to +60°C)	-4°F to +140°F (-20°C to +60°C)

\* Vmax is the maximum volume of the protected vessel

Table 1 - Specifications for all Vigiflam VQ sizes available

1) If the discharge is ATEX zone 21 or 22:

- a) Minimum Ignition Energy (MIE) > 10 mJ
- b) Minimum Ignition Temperature (MIT) > 752°F (400 °C)

2) If the discharge zone is out of ATEX zone:

- a) Minimum Ignition Energy (MIE) > 1 mJ
- b) Minimum Ignition Temperature (MIT) > 482°F (250 °C)

Certified for:

- Organic Dust
- Fiber Dust

Kst Max: 500 bar · m/s

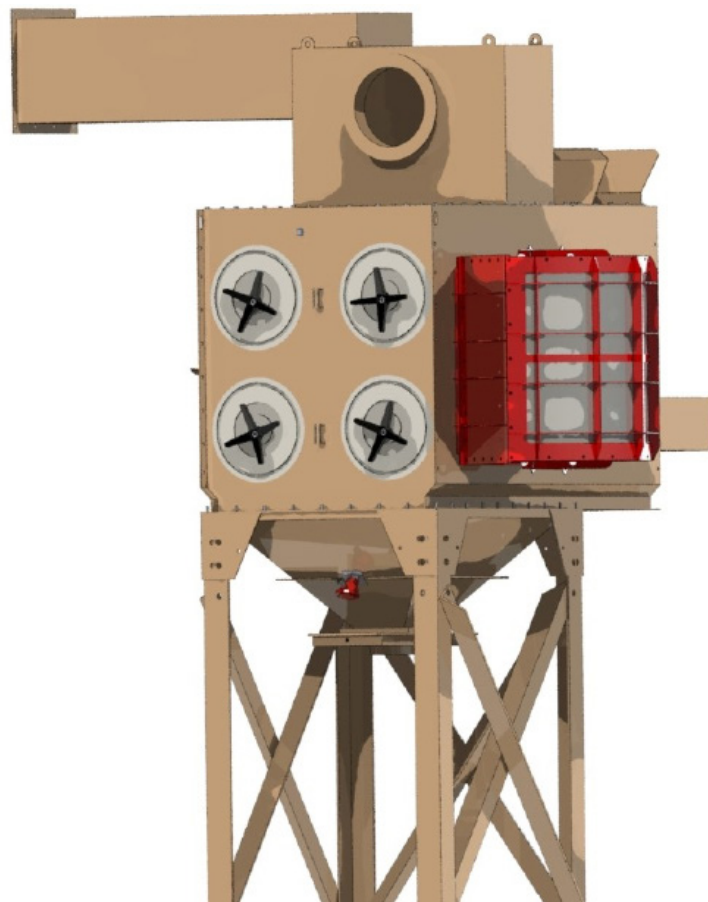


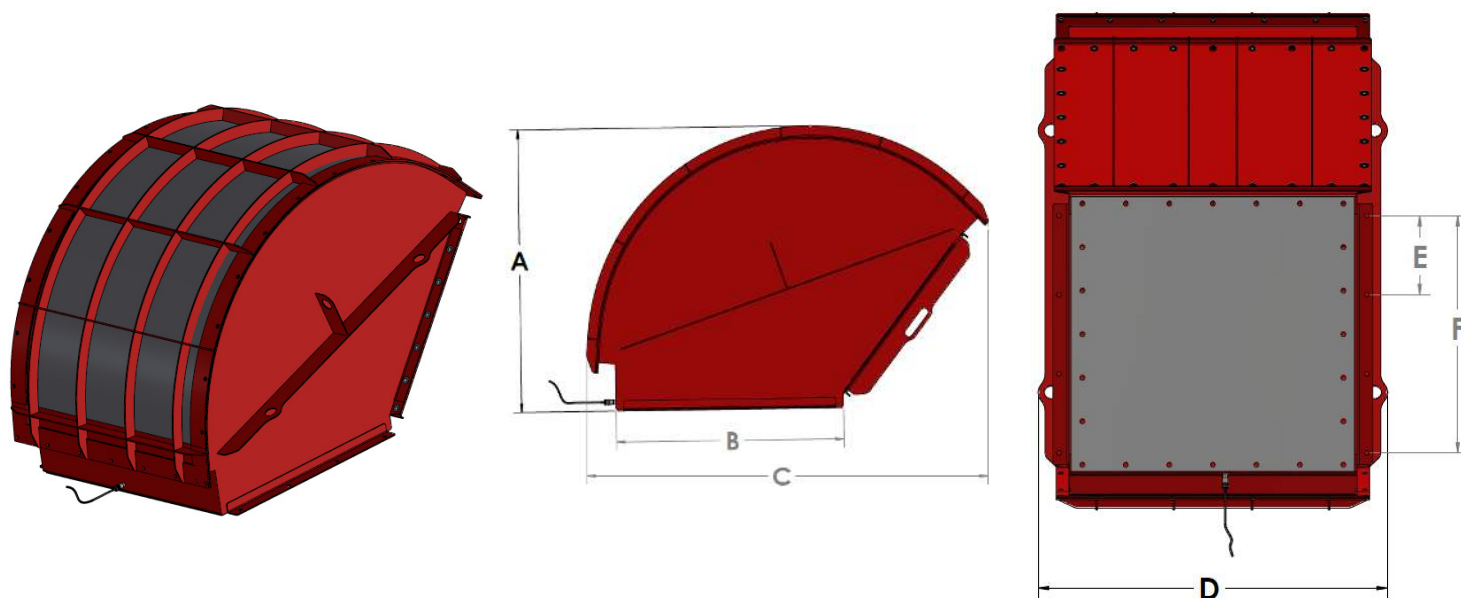
Figure 1 - Vigiflam installed on a dust collector

## VIGIFLAM VQ DIMENSIONS

Nominal Panel Size	Nominal Panel Area	Approx. Weight	Bolt Qty.
7" x 19" (170mm x 470mm)	0.845 sq ft (0.0785 m <sup>2</sup> )	137lbs (62kg)	20
11" x 18" (270mm x 458mm)	1.315 sq ft (0.1220 m <sup>2</sup> )	187lbs (85kg)	22
12" x 20" (300mm x 500mm)	1.595 sq ft (0.1480 m <sup>2</sup> )	232lbs (105kg)	24
12" x 24" (305mm x 610mm)	1.980 sq ft (0.1840 m <sup>2</sup> )	254lbs (115kg)	26
14" x 26" (350mm x 650mm)	2.425 sq ft (0.2250 m <sup>2</sup> )	276lbs (125kg)	26
19" x 23" (490mm x 590mm)	3.085 sq ft (0.2870 m <sup>2</sup> )	320lbs (145kg)	32
24" x 24" (610mm x 610mm)	3.975 sq ft (0.3695 m <sup>2</sup> )	353lbs (160kg)	32
23" x 36" (586mm x 920mm)	5.770 sq ft (0.5360 m <sup>2</sup> )	375lbs (170kg)	42
36" x 36" (920mm x 920mm)	9.070 sq ft (0.8425 m <sup>2</sup> )	700lbs (317kg)	50
44" x 44" (1130mm x 1130mm)	13.694 sq ft (1.2720 m <sup>2</sup> )	975lbs (442kg)	58

\*All bolts are M10X30

Table 2 - Dimensions table for all Vigiflam sizes available



EV-VQ Sizes	A	B	C	D	E	F
EV-VQ 170x470	19.3" (490mm)	10.6" (268mm)	23.1" (588mm)	29.5" (748mm)	1x 5.9" (1x 150mm)	5.9" (150mm)
EV-VQ 270x458	22.8" (580mm)	14.5" (368mm)	29.5" (750mm)	29.0" (736mm)	1x 9.8" (1x 250mm)	9.8" (250mm)
EV-VQ 300x500	23.8" (604mm)	15.7" (398mm)	31.3" (796mm)	30.5" (774mm)	1x 11.8" (1x 300mm)	11.8" (300mm)
EV-VQ 305x610	23.8" (604mm)	15.9" (403mm)	31.3" (796mm)	34.8" (884mm)	1x 11.8" (1x 300mm)	11.8" (300mm)
EV-VQ 350x650	25.4" (645mm)	17.6" (448mm)	34.2" (868mm)	36.4" (924mm)	1x 11.8" (1x 300mm)	11.8" (300mm)
EV-VQ 490x590	30.1" (765mm)	23.1" (588mm)	43.1" (1095mm)	34.0" (864mm)	2x 9.8" (2x 250mm)	19.7" (500mm)
EV-VQ 610x610	34.5" (876mm)	27.9" (708mm)	49.4" (1255mm)	34.8" (884mm)	3x 7.9" (3x 200mm)	23.6" (600mm)
EV-VQ 586x920	33.5" (850mm)	26.9" (684mm)	48.0" (1220mm)	47.0" (1194mm)	3x 7.9" (3x 200mm)	23.6" (600mm)
EV-VQ 920x920	51.8" (1316mm)	40.2" (1020mm)	84.7" (2151mm)	52.8" (1340mm)	4x 9.0" (4x 230mm)	36.2" (920mm)
EV-VQ 1130x1130	60.7" (1542mm)	48.8" (1240mm)	100.7" (2557mm)	63.0" (1600mm)	6x 7.5" (6x 190mm)	44.9" (1140mm)

Table 3 - Dimensions table for all Vigiflam sizes available

## RECEIVING THE VIGIFLAM VQ



Figure 2 - Vigiflam ready for shipment

- The Vigiflam VQ is shipped shrink-wrapped and placed in a wooden crate. Customer must inspect the equipment for damage upon receipt. If damage is present, receiver must note damaged on the shipping documents in order to file a claim.
- The Vigiflam VQ main body will be delivered pre-assembled.
- The burst sensor, flat or domed explosion panel, and hardware for panel installation and mounting are shipped in a cardboard box placed on top of the main body or inside it.

## VIGIFLAM VQ SHIPMENT PARTS

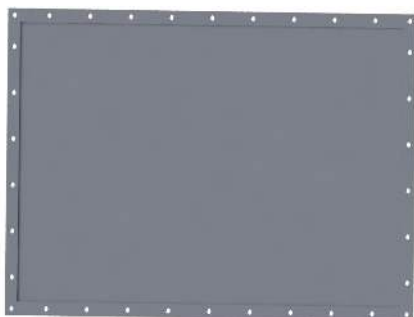


Figure 3 - VL flat explosion panel

OR



Figure 4 - VD domed explosion panel

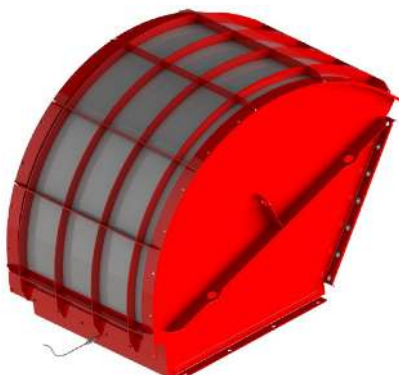


Figure 5 - Vigiflam main body



Figure 7 - Breakable burst sensor

OR



Figure 6 - M10X30 bolts



Figure 8 - Inductive burst sensor

## VIGIFLAM VQ SAFETY ZONES

The safety zone around the Vigiflam flameless explosion vent must be marked in the venting direction. This zone shall not be entered during operation of the system.

Safety zones are calculated based on protected dust collection vessel's volume, and in some cases dust particle size also needs to be taken into consideration:

- R must be at least 6.56' (2m) if vessel's volume is equal or less than 353.14 ft<sup>3</sup> (10m<sup>3</sup>)
- R must be at least 9.84' (3m) if vessel's volume is greater than 353.14 ft<sup>3</sup> (10m<sup>3</sup>)
- R must be at least 16.40' (5m) if:
  - ▷ 35% of dust particles' diameters are equal or smaller than 50µm
  - ▷ 90% of dust particles' diameters are equal or larger than 50µm and equal or smaller than 250µm

Distance from Vigiflam to a wall or other equipment must be 1.64' (0.5m) minimum.

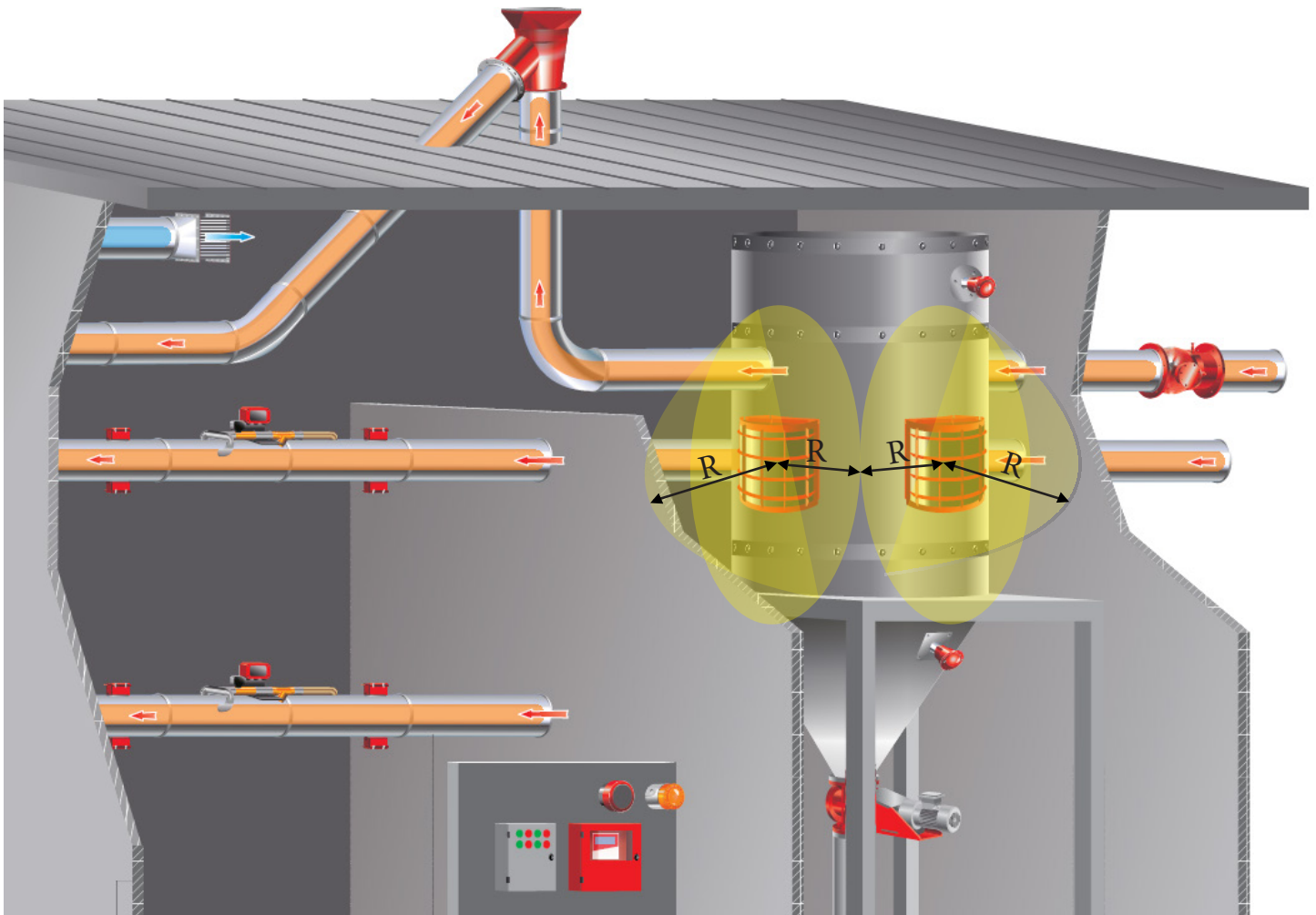


Figure 9 - Safety zones minimum distances (R) around the Vigiflam

## VIGIFLAM VQ INSTALLATION INSTRUCTIONS

**STEP 1:** Mount the Vigiflam to the dust collecting vessel using M10x30 bolts provided with shipment. Ensure to use holes on the outside metal brackets as shown in figure 10.

**NOTE:** Installer must allow enough room for access door to be removed/re-attached freely of obstructions in cases where panel and/or breakable sensor need to be adjusted or replaced.

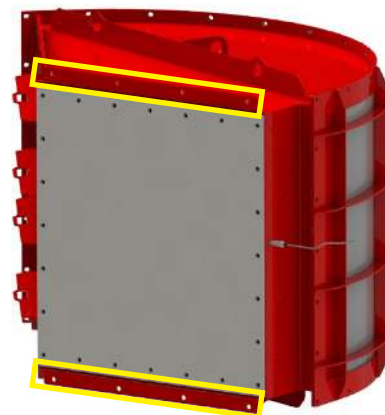


Figure 10 - Outside metal brackets for mounting

**STEP 2:** Remove access door to install explosion panel (VL or VD) to the **inside** of the VQ vent.

**NOTE:** The explosion panel **MUST** mount inside the Vigiflam enclosure. It does **NOT** mount to the dust collecting vessel.



Figure 11 - Access door removed for easy panel installation

**STEP 3:** Ensure the hole pattern of the inside panel matches the vent's hole pattern. Use a torque wrench to tighten all M10x30 provided with a force of 20Nm to secure panel and vent to the dust collecting vessel.

**NOTE:** Panel must be installed inside of the Vigiflam VQ vent, not the outside.

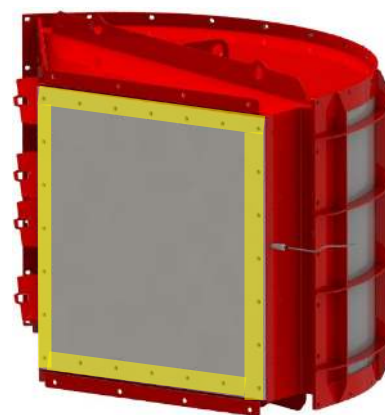


Figure 12 - Hole pattern of panel /vent highlighted is used to secure unit to vessel

**STEP 4:** Properly ground the Vigiflam vent to the VL or VD panel using conductivity strip provided. Additionally, use second conductivity strip to ground the Vigiflam to the vessel or the ground.



## INDUCTIVE BURST SENSOR TECHNICAL FEATURES



P/N: 40411-020000

Technical Features of Inductive Burst Sensor	
DC Voltage:	12-48V DC
Rated Current:	200 mA Max.
Material:	Nickel Plated Brass
Protection:	IP 67
Dimensions:	2.4" long, Ø0.70" (61mm long, Ø18mm)
ISO Thread:	M18 x 1
Nominal Sensing Distance	0.32" (8mm)

Table 5 - Inductive burst sensor technical features

## INDUCTIVE BURST SENSOR INSTALLATION INSTRUCTIONS

**STEP 1:** Lift internal metal tab on the vent panel to 90°.



Figure 17 - Internal metal tab lifted

**STEP 2:** Screw inductive burst sensor through Vigiflam vent's hole.

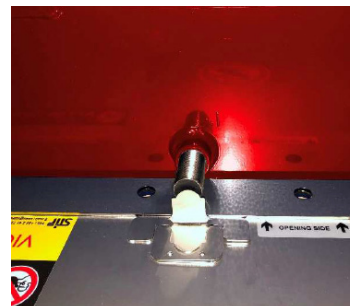


Figure 18 - Inductive burst sensor proper installation

**STEP 3:** Ensure inductive burst sensor tip is 0.16" (4mm) away from the metal tab in step 1.

**NOTE:** Inductive burst sensor does not require its own control box. It can be wired to Boss' control panels (CP03 or CP04) or any other control panel available on location.

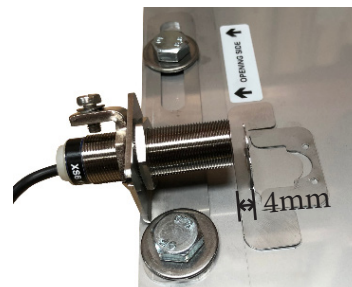


Figure 19 - Recommended distance between inductive burst sensor and metal tab

## INDUCTIVE BURST SENSOR WIRING

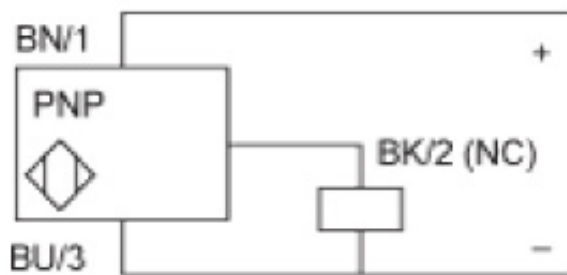


Figure 20 - Inductive burst sensor wiring diagram

Normally open contact held closed by metal tab

**Brown:** 24V+

**Blue:** 0V-

**Black:** Signal wire

## VIGIFLAM VQ MAINTENANCE

- The outside of the Vigiflam flameless explosion vent must remain free of dust accumulation.
- An inspection protocol needs to be enforced monthly after installation to ensure no dust accumulation is present on the outside screen/mesh. If no dust deposits are noticed after the first few months, the interval between inspection checks can be extended appropriately dependent on dust type and work area conditions.
  - NOTE:** The Vigiflam must be inspected at least once a year.
- If dust accumulation is present, it must only be removed after a complete system shutdown using a soft brush and/or vacuum cleaner.
  - NOTE:** Do not use any fluids during cleaning. The unit must remain dry.
- To guarantee the cleanliness of the outside of the Vigiflam, we offer an optional dust cover to protect the unit from dust. P/N: 42301-010000 through 42301-140000 according to Vigiflam size.



Figure 21 - Optional dust cover protection for the Vigiflam

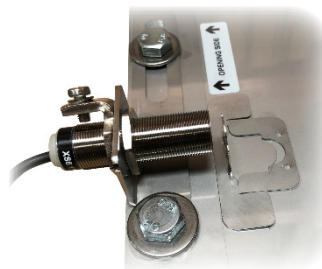


- In case of a deflagration event, burst sensor must initiate immediate system shut down.
- Visual and/or audible alarms can be integrated to enforce personnel to evacuate the building.
- Following a deflagration event, when situation is under control and risks of a secondary explosion are eliminated, the Vigiflam unit must be closely inspected for potential structural damage and/or fractures.
- VL or VD explosion panels and burst sensors are non-reusable; they must be replaced with unused parts after every deflagration event when it is safe to do so.

## VIGIFLAM VQ SPARE/REPLACEMENT PARTS



Flat Explosion Vent Panels  
P/N: 51501



Inductive Burst Sensor  
P/N: 40411-020000



Domed Explosion Vent Panels  
P/N: 51502



(Optional) Dust Cover  
P/N: 42301-010000  
through  
42301-140000

## FREQUENTLY ASKED QUESTIONS

1. Do I need to have a burst sensor on the Vigiflam flameless explosion vent?
  - ▷ Yes, in order to be NFPA compliant all devices shall be equipped with an indicating sensor that shall notify the user upon activation of the device. (NFPA68 6.9.6).
2. Do I need intrinsically safe wiring for the inductive burst sensor?
  - ▷ No, you only need the inductive burst sensor; however, if you choose to purchase the breakable burst sensor, you will also need the required intrinsically safe control box P/N 56001-010000.
3. How do I wire the inductive burst sensor to my control panel?
  - ▷ The inductive burst sensor has 3 wires. The brown wire lands in any 24V+ terminal, the blue wire lands in any 0V- terminal, and the black wire is a signal wire. Refer to page 13.

## TROUBLESHOOTING GUIDE

1. I am not sure my breakable burst sensor is working properly.
  - ▷ Check for continuity between the wires.

## CONTACT INFORMATION



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SAFETY PROTECTION

By **STIF**



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