BREATHER VALVE
CUM FLAME ARRESTER
[FDI-BVFA-708-707 / FDI-BVFA-708-706]

INDEX

FIDICON
DEVICES INDIA PRIVATE LIMITED
Dedicated to People & Environment Protection

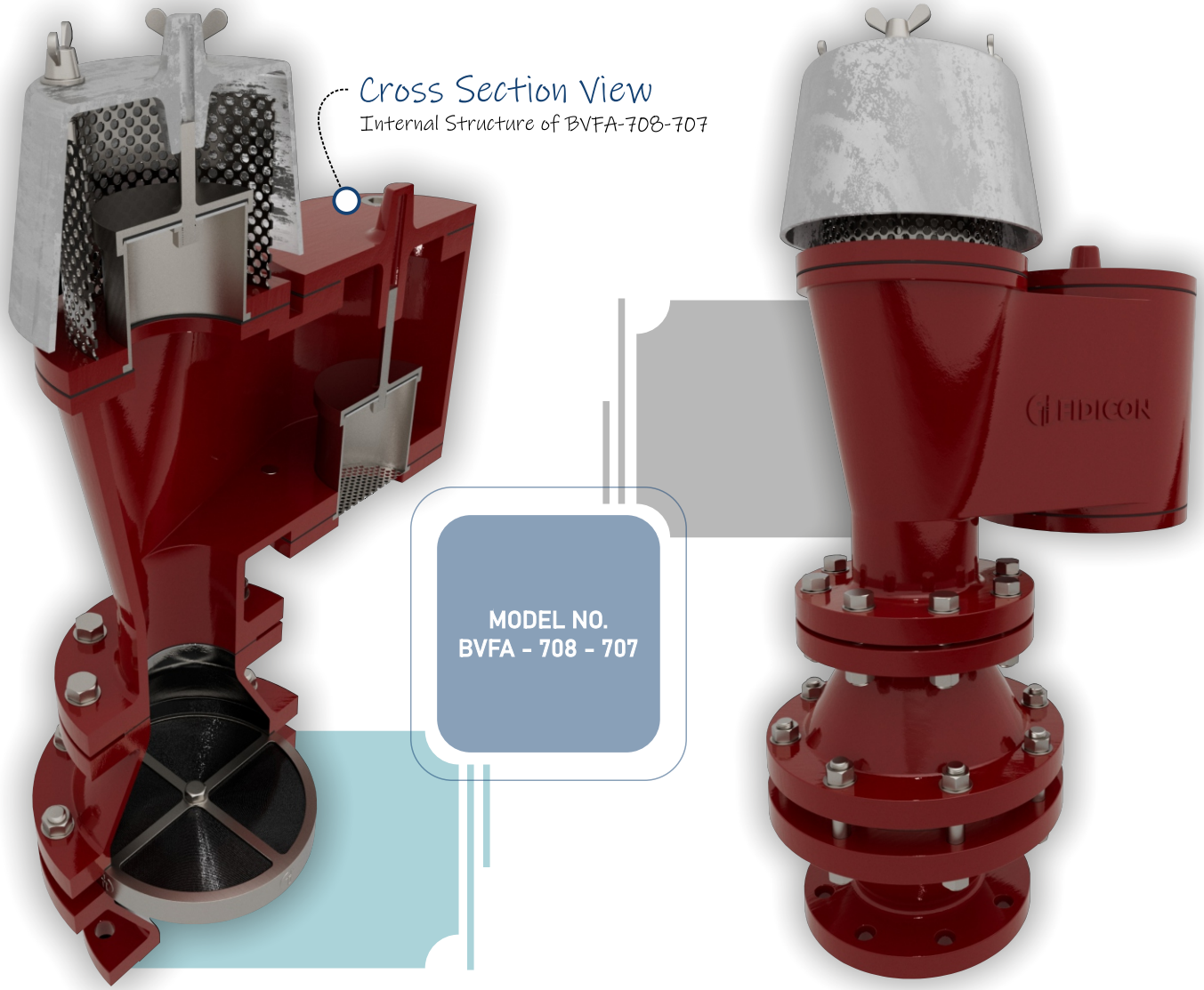
TÜV INDIA
ISO 9001 + ISO 14001 +
ISO 45001 Certified

INTODUCTION : BREATHER VALVE CUM FLAME ARRESTER

Breather Valve also referred to as Pressure and Vacuum Relief Valve, the breather valve is an important part for atmospheric tanks & vessels in which solvents are filled and drawn at a high flow rate. This type of valve is installed in the in-and out-breathing lines of tanks, vessels and process equipment to retain toxic vapors and avoid atmospheric contamination, thus balancing unpredicted fluctuations in pressure & vacuum and providing increased fire protection and safety.

It is available in different types like pressure only, vacuum only, and combined pressure/vacuum type. It protects the storage tank in excessive pressure and vacuum conditions which cause rupture or imploding of the storage tank. They are available in a flanged outlet and atmospheric outlet. It is available in pallet type, spring type, and both combined type design also. Combine type valve is popular because in excessive pressure condition spring design will work and in vacuum condition pallet design will come in the picture.

When continuous pump feeding is taking place tank need to breathe means the circulation of air is needed. At that time if the vent is not big enough or is closed tank may explode or rupture happens. During this time if pressure exceeds the set pressure of the breather valve it will open and relieve the pressure. On the other hand, if the continuous pump emptying process is taking place at that time tank needs to breathe in the air. If the vent is closed or not big enough tank may implode. In this condition, the breather valve will open and relieve the vacuum.



INTODUCTION : BREATHER VALVE CUM FLAME ARRESTER

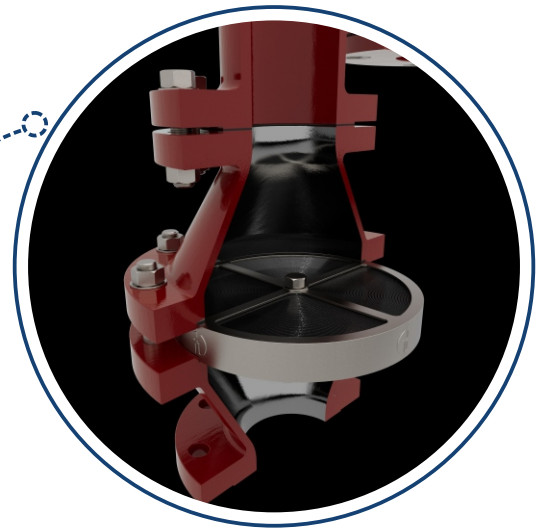
Assembled Model of Flame Arrester and Breather Valve is suitable for the all applications which has uncertainty of Explosion occurrence for the tanks also with tank breathing requirements. Flame Arrester Element Bank is constructed as per certified M.E.S.G. (Maximum Experimental - Safe Gap) to quench the occurred flames and extinguish it with minimal pressure drop in the system as well. Flame quenching process is described in simpler manner is Flame / Explosion is distributed into multiple small Flames and is passed through the safe gap, allowing gases to pass and stop the flames internally.

MESG are predefined for the specific gases and vapors by testings and categorized using hazardous gas groups by ATEX, NFPA, IEC and several other standards, practically testing and measuring the MESG.

Fidicon built Flame Arrester Element Banks are fully checked and tested as per relative standards for safety against, Detonation, Deflagration, Short Time burning, Endurance Burning, Flashback in accordance with ISO : 16852 / IS : 16845, IS : 11006, ATEX Directive 2014/34/EU, and other Testings may performed as per requirements of the product and customer. combined with Breather valve design and performance standards are as per API 2000, API 520 available in both category of dead-weight type and spring type loaded pallets for set pressure and vacuum.

We at Fidicon Devices India Private Limited offer high-quality products with minimum pressure drop possible for Custom Requirements.

Overview main difference in both products - Breather valve cum flame arrester, & Breather valve Flame Arrester Inbuilt Type, is size of flame element bank, placement of bank, pressure drop difference and compactness of the product. even so both has same functionality, Inbuilt type of Breather valve has little more pressure drop compared to the assembled product because of the change of element bank size, and whereas in terms of compactness inbuilt type is preferred. For Selection parameters, check last page of this brochure.



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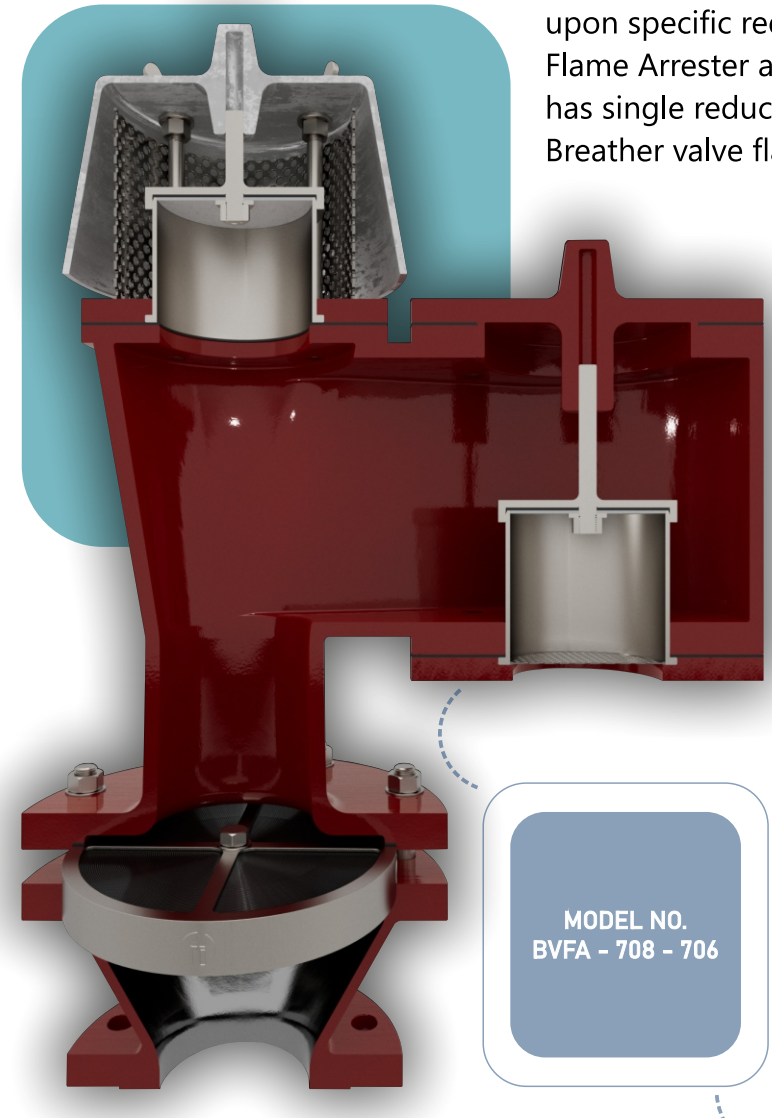
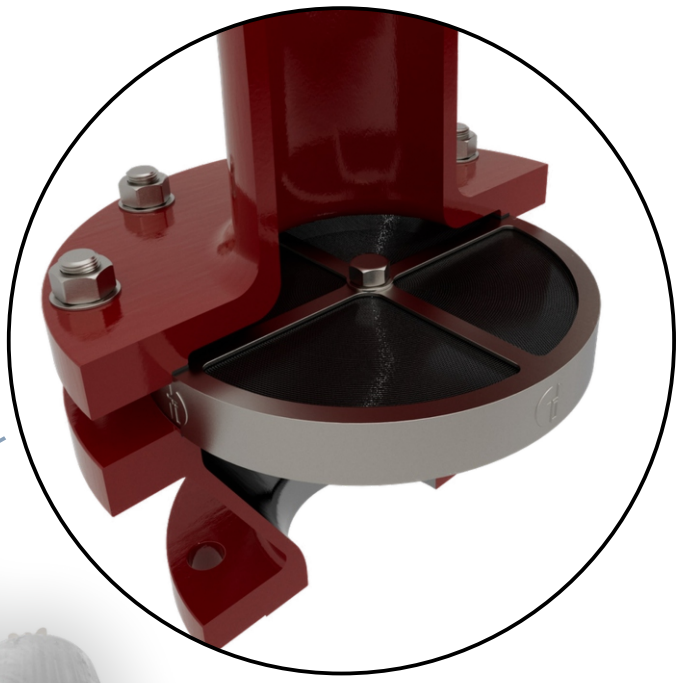


upon specific requests, we also have introduced Breather Valve cum Flame Arrester as end of line configuration of Flame Arrester, which has single reducer of Flame arrester and other side the connecting Breather valve flange is manufactured suitable to Reducer Flange.

Breather Valve cum Flame Arrester BVFA-708-706 is slightly improved version of actual model with In-Line Flame Arrester in terms of compactness & weight reduction. it also offers almost similar pressure drops values for same operating conditions.

Breather valves are designed as per specified standards indicated on following pages, based on operating conditions, & service media, making sure that you achieve in-breathing and out-breathing requirements.

MODEL NO.
BVFA - 708 - 706



for product selection - assistance contact our sales team for the expertise guidance for your specific requirements.

Breather Valve Flame Arrester Inbuilt type, are widely used for it's compact design and dual functionality of breathing for tank as well as explosion-fire safety against hazardous gases, liquid vapor, solvents.

Model No.
FDI - BV - 717

Available Sizes:
1" to 24" and different sizes as per customer request.

Material of Construction:
Aluminum, Carbon Steel, SS 304, SS 316, Hastelloy, PTFE as per Standards and Customer Request.

Connection Type:
ANSI B 16.5 #150 and other as per customer requirements.

Pressure Setting:
as per customer requirements.

Sizing of Product BVFA:

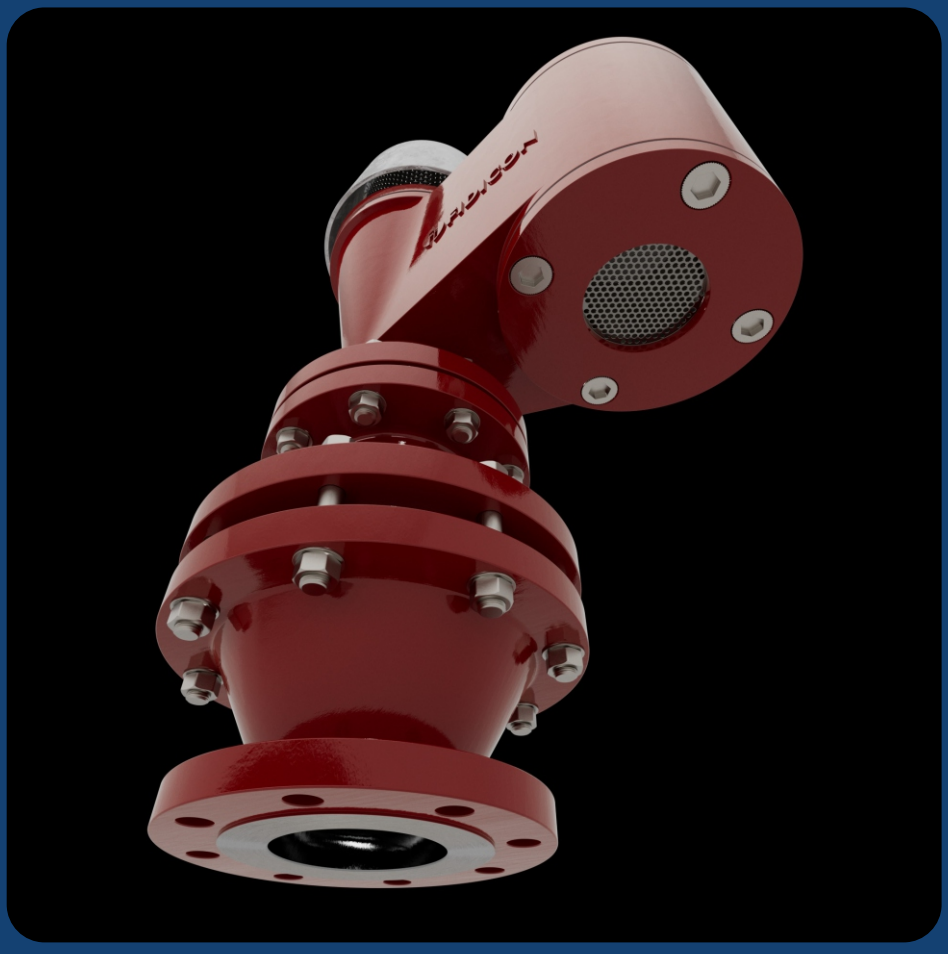
Breathing During Pumping due to :

- Pumping Fluid into Tank (Pressure)
- Pumping Fluid out of Tank (Vacuum)

Thermal Breathing Due to:

- Increase in Temperature (Pressure)
- Decrease in Temperature (Vacuum)

Assemble type model functions successfully for both condition, the additional flame arrester element bank will result in additional little pressure drop in the product comparing to only PVRV Functionality. so we provide and ensure you with the minimum possible pressure drop as per your connection size needs, service media and operating pressure, temperature conditions.



Wing/Hex Nuts

Weatherhood

Nuts & Washers

Studs

Pallet & Stem

Bird Screen

Gasket & PTFE Disk

Seat

Body

Bird Screen

Gasket

Body

Flame Element Bank + Gaskets

Connection Port

IMAGE:
Breather Valve cum Flame Arrester
FDI - BVFA - 708 - 707

STANDARDS FOLLOWED BY US.

- **API 2000** (American Petroleum Institute)
- **API RP 2210 :** Benefits & Detriments associated with use of Flame Arrester for Vents of Tanks Storing Petroleum Products.
- **API 2028 :** Standard for Flame Arrester in Piping System.
- **USCG 33 CFR154 :**
  (Appendix A : Guidelines for Detonation Flame Arrester)
  (Appendix B : Standard Specification for Tank vent Flame Arrester)
- **UL525 :** Standard for Safety for Flame Arrester UL Gas & Oil Equipment Directory
- **CEN EN 12874 :** Flame Arrester Performance Requirements, Test Methods & Limits for Use.
- **ASTM F 1273 :** Standard Provides Minimum Requirements for Design, Construction, Performance, & Testing of Tank vent flame arrester.
- **IS 11006: 2011 :** Flame Arrester Specifications
- **EN ISO 16852 :** ATEX Compliance Atmospheric Explosible
- **ISO 16852:2016 :** Flame Arrester Performance Requirements Test Methods, & Limits for use.
- **NEC/CEC** (National Electrical Code / Canadian Electrical Code)
- **ASME B 31.3 : 2002**
- **API 2521 :** Use of Pressure Vent Valves for Atmospheric Loss.
- **API 520 Part-I :** Sizing, Selection, and Installation of Pressure-Relieving Devices
- **API 521 :** Pressure-Relieving and De-pressuring Systems.
- **ISO 28300 :** Petroleum, petrochemical and natural gas industries, Venting of atmospheric and low-pressure storage tanks.

CERTIFICATIONS

- **IS 11006 : 2011 CSIR-CIMFR**
- **EN 12874 : EN ISO 16852 ATEX COMPLIANCE**
- **ISO 16852 : 2016**

RECOMMENDED DISPOSAL

- Give it back to us & we will take care of recycling & possible disposal.
- User can dis-assemble the product in multiple stage
- The above may be handed over (state pollution board), authorized re-cycler item-wise.

PRODUCT TESTING

Valves are tested for proper setting and for leakage rate of less than 0.03 Nm3/hr of air at 90% of the set pressure. Additionally valves are tested for leak tightness at 75% of set point as required by API 2000.

*custom testing specifications can be followed, as required.

We offer Following Product Tests,

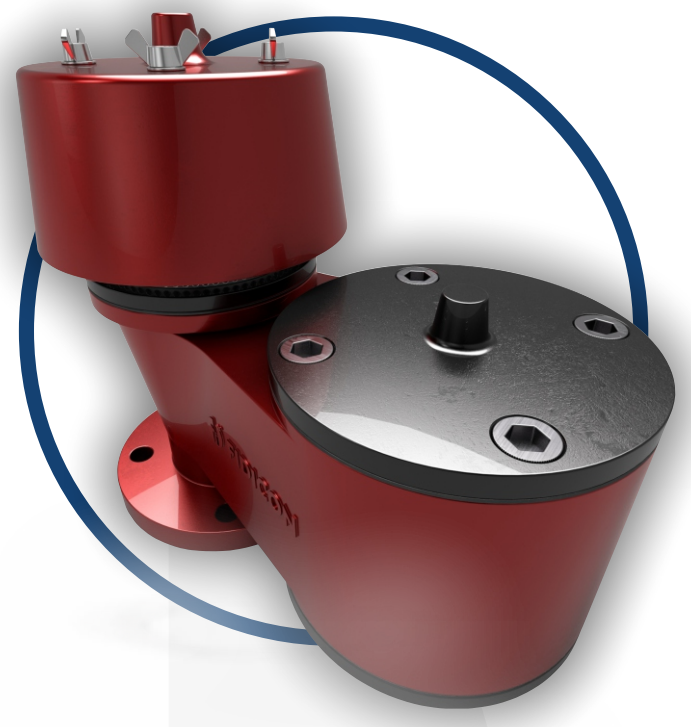
- Flow Capacity
- Dimensional Checks
- Hydrostatic Pressure Test
- Air Leakage Test
- Performance Test, etc.

*other tests may be performed as per customer request.

ORDER GUIDE & RECOMMENDED SPARES

ENQUIRY SPECIFICATIONS:

[1] Service Media Details.
[2] Tank Volume, Type, MOC of Tank
[3] Pump Flow (In-Charge, Discharge Flow Rate)
[4] Product Design Condition (Normal Vent / Fire)
[5] N2 Blanketing System Available (If Yes, Flowrate / No)
[6] System Operating and Design Pressure.
[7] System Operating and Design Temperature.
[8] Set Pressure and Vacuum Requirements.
[9] Material Specifications (Body, Internal)



RECOMMENDED SPARES

[1] Moving Parts Such as, Pallet, Diaphragm, Dead Weights, Stem, Spring.

[2] Flame Element Bank for Breather Valve with Flame Arrester/ Inbuilt Type.

SIMILAR RANGE OF PRODUCTS

Category :
Dead Weight Type, Spring Loaded Type.

Sub Types :
Breather Valve In-Built Flame Arrester
Breather Valve cum Flame Arrester
Pipeway Type (Pressure & Vacuum) Breather Valve
Vacuum Type Breather valve
Pressure Type Breather Valve, etc.

Any Query?
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