Technical Datasheet

Explosion Vent Panels

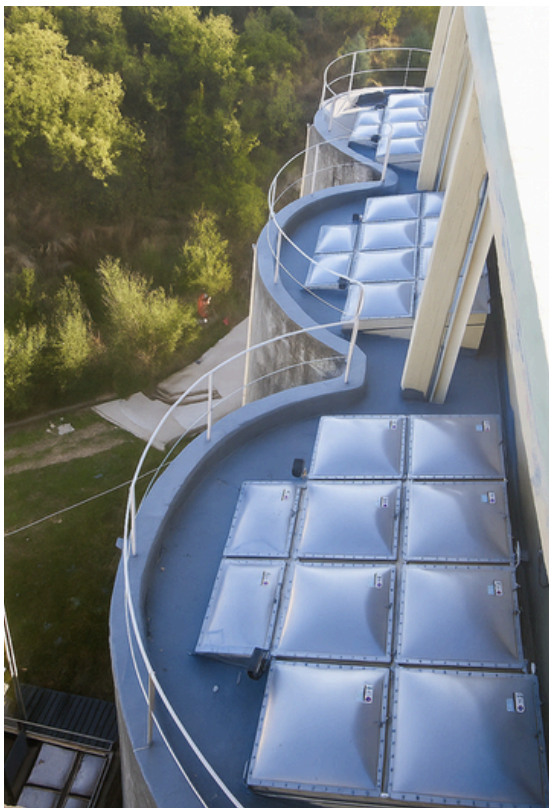
Explosion vent panels are advanced **explosion protection solutions** designed for installation on enclosed equipment. They open at a predetermined pressure (P_{stat}) to rapidly and safely relieve explosion overpressure to a designated safe area, without fragment emission, ensuring the integrity of the protected vessel and preventing structural damage.

In the event of a rapid pressure rise due to an internal deflagration, the vent panel opens at its calibrated rupture pressure, **providing controlled pressure relief and directing combustion gases to a safe area**.

The full opening of the venting area **effectively limits the reduced pressure** (P_{red}) within the protected equipment.

Key Advantages

- Full venting area opening
- Non-fragmenting design
- Certified rupture pressure
- Stainless steel construction (AISI 304 or 316)
- Dust-tight sealing
- Suitable for ATEX dust and gas applications
- Easy and quick installation



Standards & Certification

- ATEX Certification: LOM 18ATEX1021X in accordance with EN 14797 – Explosion venting devices.
- ATEX Marking:
  - Ex GD EN 14797
  - Ex D EN 14797
- Design Compliance in accordance with NFPA 68 principles.

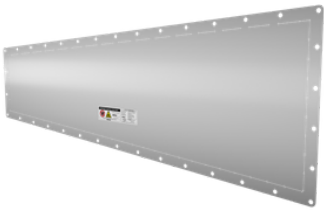
Applications

The selection of the vent panel type should be based on the process operating conditions and the explosivity characteristics of the gas or dust present.

BRP.BCP.BTP.

Flat vent panels of types BRP, BCP, and BTP are suitable for atmospheric applications **with zero or very low vacuum and without pulsating pressures**, such as mechanically filled silos, bucket elevators, and other bulk solids handling equipment.

Main Characteristics

	BRP [Flat. Rectangular]	**BCP [Flat. Circular]**	**BTP [Flat. Trapezoidal]**
			
Dust type	Organic and metal dust up to St3 Gas group IIA	Organic and metal dust up to St2 Gas group IIA	Organic and metal dust up to St1
Material	Stainless steel AISI304 | AISI316		
Max. K_{st}	600 bar·m/s	300 bar·m/s	200 bar·m/s
Max. K_G	100 bar·m/s		...
P_{max}	12 bar	10 bar	
Working pressure	90% P_{stat} mbar		75% P_{stat} mbar
P_{stat} a 20ºC	20 - 500 ±25% mbar		
Efficiency	100 %		
Standard working temp.	- 20ºC to + 90ºC		
Certified	LOM 18ATEX1021X according to EN 14797		
ATEX marking	Ex GD EN 14797		Ex D EN 14797

BRD.BCD.BRDM.

Single-layer domed vent panels types BRD and BCD are suitable for vacuum and **pulsating pressure applications**, such as pneumatically filled silos, dust collectors, cyclones, and other bulk solids handling equipment.

Multi-layer domed vent panels type BRDM are suitable for **vacuum and high-vacuum applications**, such as dust collectors and cyclones.

Main Characteristics

	BRD [Domed. Rectangular Single-layer]	**BCD [Domed. Circular Single-layer]**	**BRDM [Domed. Rectangular Double-layer]**
			
Dust type	Organic and metal dust up to St3 Gas group IIA	Dust type Organic and metal dust up to St2 and Gas group IIA	Organic and metal dust up to St3
Material	Stainless steel AISI304 | AISI316		
Max. K_{st}	600 bar·m/s	300 bar·m/s	600 bar·m/s
Max. K_G	100 bar·m/s		...
Working pressure	90% P_{stat} mbar		
P_{stat} a 20ºC	20 - 100 ±25% mbar		20 - 500 ±25% mbar
Efficiency	100 %		90%
Standard working temp.	- 20ºC to + 90ºC		
Certified	LOM 18ATEX1021X according to EN 14797		
ATEX marking	Ex GD EN 14797		Ex D EN 14797

BRS.BRH.

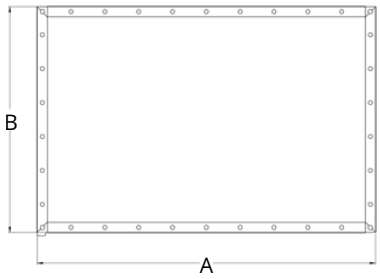
Reinforced vent panels type BRS are suitable for **low-vacuum and pulsating pressure applications**, such as pneumatically filled silos, dust collectors, cyclones, and other powder-handling process equipment.

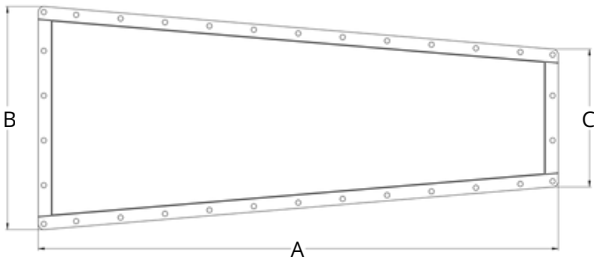
Reinforced vent panels type BRH are designed for installation in battery rooms to relieve overpressure caused **by explosions due to hydrogen gas accumulation.**

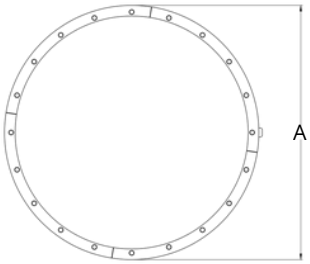
Main Characteristics

	BRS [Reinforced. Rectangular]	**BRH for H_2 [Reinforced. Rectangular]**
		
Dust type	Organic and metal dust up to St3	Gas group IIC
Material	Stainless steel AISI304 | AISI316	
Max. K_{st}	600 bar·m/s	...
Max. K_G	...	550 bar·m/s
Working pressure	90% P_{stat} mbar	
P_{stat} a 20ºC	20 -500 ±25%	20 -100 ±25%
Efficiency	100 %	
Standard working temp.	- 20ºC to + 90ºC	
Certified	LOM 18ATEX1021X according to EN 14797	
ATEX marking	Ex D EN 14797	Ex G EN 14797

Dimensions







> BRP [Flat. Rectangular]

Type	Dimensions (mm) (AxB)	Venting Area (m^2)
BRP350x200	350×200	0,032
BRP550x250	550×250	0,08
BRP380x380	380×380	0,09
BRP546x358	546×358	0,116
BRP610x300	610×300	0,117
BRP550x350	550×350	0,127
BRP537x385	537×385	0,139
BRP496x496	496×496	0,173
BRP690x385	690×385	0,177
BRP870x310	870×310	0,182
BRP690x425	690×425	0,21
BRP740x460	740×460	0,238
BRP670x570	670×570	0,289
BRP850x500	850×500	0,323
BRP880x530	880×530	0,36

Type	Dimensions (mm) (AxB)	Venting Area (m^2)
BRP690x690	690×690	0,37
BRP970x537	970×537	0,393
BRP740x740	740×740	0,413
BRP990x660	990×660	0,498
BRP1100x600	1100×600	0,53
BRP1000x666	1000×666	0,539
BRP1220x735	1220×735	0,747
BRP1000x1000	1000×1000	0,846
BRP1198x995	1198×995	1,023
BRP1100x1100	1100×1100	1,04
BRP1750x800	1750×800	1,202
BRP1460x1000	1370×910	1,247
BRP1220x1220	1220×1220	1,3
BRP1500x1200	1500×1200	1,59
BRP2080x1080	2080×1080	2

> BCP [Flat. Circular]

Type	Dimensions (mm)	Venting Area (m^2)
BCP280	280	0,031
BCP370	370	0,071
BCP470	470	0,115
BCP565	565	0,159
BCP715	715	0,317
BCP974	974	0,614
BCP1020	1020	0,679

> BTP [Flat. Trapezoidal]

Type	Dimensions (mm) (AxBxC)	Venting Area (m^2)
BTP1400	1400x600x367	0,532
BTP1700	1700x600x367	0,653

> BRD [Domed. Rectangular Single-layer]

Type	Dimensions (mm) (AxB)	Venting Area (m^2)
BRD550x250	550×250	0,08
BRD380x380	380×380	0,09
BRD550x350	550×350	0,127
BRD537x385	537×385	0,139
BRD496x496	496×496	0,173
BRD690x425	690×425	0,21
BRD740x460	740×460	0,25
BRD670x570	670×570	0,289
BRD850x500	850×500	0,323
BRD880x530	880×530	0,36
BRD970x537	970×537	0,393
BRD740x740	740×740	0,413
BRD1000x666	1000×666	0,539
BRD1000x1000	1000×1000	0,846

> BRS [Reinforced Rectangular]

Type	Dimensions (mm) (AxB)	Venting Area (m^2)
BRS670X570	670X570	0,289
BRS880X530	880X530	0,36
BRS1000X666	1000X666	0,539
BRS1000X1000	1000X1000	0,846

> BRH for H_2 [Reinforced Rectangular]

Type	Dimensions (mm) (AxB)	Venting Area (m^2)
BRH670X570	670x570	0,289
BRH880X530	880X530	0,36
BRH1000X666	1000X666	0,539
BRH1000X1000	1000X1000	0,846

> BRDM [Domed. Rectangular Double-layer]

Type	Dimensions (mm) (AxB)	Venting Area (m^2)
BRDM550x250	550×250	0,072
BRDM550x350	550×350	0,114
BRDM537x385	537×385	0,125
BRDM496x496	496×496	0,156
BRDM690x425	690×425	0,189
BRDM670x570	670×570	0,26
BRDM880x530	880×530	0,324
BRDM970x537	970×537	0,366
BRDM1000x666	1000×660	0,485
BRDM1000x1000	1000×1000	0,761

> BCD [Domed Circular Single-layer]

Type	Dimensions (mm)	Venting Area (m^2)
BCD280	280	0,031
BCD370	370	0,071
BCD470	470	0,115
BCD565	565	0,159
BCD715	715	0,317
BCD974	974	0,614
BCD1020	1020	0,679

*For other sizes and/or working conditions, please contact us.

Accessories

> **Integrated Gaskets.**
Components that ensure tightness between the vent panel and the equipment, preventing air, dust and moisture leakage in both indoor and outdoor applications.
  - **EPDM or equivalent**: operating temperature -30°C to 90°C
  - **Silicone or equivalent**: operating temperature -40°C to 150°C, peaks up to 220°C; FDA certification available for food applications
  - **Ceramic or equivalent:** thermal stability up to 350°C
- **Benefits:** Maintains panel efficiency and protects the process from contamination and pressure loss.
- **Compatible with panels:** BRP. BCP. BTP. BRD. BCD. BRDM. BRS. BRH.

> **Magnetic rupture detector MK500A.**
Allows real-time monitoring of the vent panel after an explosion. Instantly detects panel rupture, generating a signal indicating loss of magnetic contact.
  - Supply: PNP, 10...30 V DC
  - Ambient temperature: -25 °C to 60 °C
  - Protection rating: IP65; IP67
  - ATEX marking: Ex II 3D Ex tc IIIC T125 °C Dc X
- **Benefits:** Enables rapid inspection and replacement of the panel to restore the protection system.
- **Compatible with panels:** BRP. BCP. BTP. BRD. BCD. BRDM. BRS. BRH.

> **High-temperature rupture signalling cable RECS type, VP2759.**
Reliably detects the activation of a venting panel in high-temperature environments. In the event of an explosion, the cable breaks and generates a loss signal, enabling a rapid response by the maintenance team.
  - Output function: normally closed contact
  - Supply voltage: 24 V DC
  - Temperature range: –60°C to 300°C (peak 350 °C)
  - Length: 2 m
  - Requires safety barrier for installation with intrinsic safety protection (according to IEC 60079-11)
- **Benefits:** Maintains system integrity even under extreme temperature conditions.
- **Compatible with panels:** BRP. BCP. BTP. BRD. BCD. BRDM. BRS. BRH.

> **Process (or Safety) Flanges.**
Facilitate the safe installation of venting panels and reinforce the equipment structure, especially under vacuum or variable pressure conditions.
  - Material: carbon steel, stainless steel AISI 304 or AISI 316
  - Available versions: welded (type L) or bolted (type U)
- **Benefits:** Keeps the panel securely in place during normal system operation.
- **Compatible with panels:** BRP. BCP. BTP. BRD. BCD. BRDM. BRS. BRH.

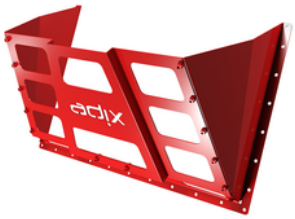
> **Mounting (or External) Flange.**
Installed on the outer perimeter of the panel to provide structural stability and reduce vibrations that could weaken the panel.
  - Material: stainless steel AISI 304 or AISI 316
- **Benefits:** Prevents deformation and ensures the integrity and tightness of the assembly.
- **Compatible with panels:** BRP. BCP. BTP. BRD.

> **Explosion Vent Deflector – Deflex.**

Diverts the flame, pressure, and heat generated by an explosion toward a safe area, reducing the required safety zone.

- Substance type: dust
- Deflection angle: 45°
- Maximum K_{st}: 305 bar·m/s
- Maximum pressure: 10 bar
- Max. P_{red}: 1 bar
- Maximum rupture pressure: P_{stat} < 200 mbar
- Maximum efficiency: 90% (depending on size)

- **Benefits:** Minimizes risk to personnel and equipment while increasing the usable working area.
- **Compatible with panels:** BRP. BRD. BRDM. BRS.



> **Thermal Insulation – TEAI.**

Insulating cover that reduces heat loss through the panel, maintaining stable thermal conditions within the equipment.

- Insulation material: NBR + PVC
- Water absorption: < 0.1 vol%
- Temperature range: –45 °C to 110 °C
- Does not affect the operational efficiency of the panel

- **Benefits:** Improves thermal efficiency and process protection.
- **Compatible with panels:** BRP. BRS.

> **Weather Insulation – WEAI .**

Protects panels installed outdoors from rain, snow, and dust..

- Material: plastic
- Does not affect the operational efficiency of the panel

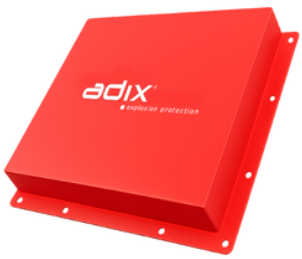
- **Benefits:** Ensures system safety and functionality without affecting panel performance.
- **Compatible with panels:** BRP. BRD. BRDM. BRS. BRH.

> **Thermal and Weather Insulation – VEAI**

Protects vent panels installed outdoors from adverse weather conditions and heat loss.

- Inclined housing that prevents accumulation of dust, water and snow
- Internal insulation material: fire-resistant mineral wool (reaction to fire A1)
- Maximum exposure temperature: 80 °C
- Does not affect the operational efficiency of the panel

- **Benefits:** Ensures safe and long-lasting operation of the system outdoors.
- **Compatible with panels:** BRP. BRD.



> **Thermal and Weather Insulation – VEAIHII.**

Protects outdoor-installed venting panels against adverse weather conditions and heat loss.

- Metal housing: stainless steel
- Internal insulation material: compact NBR + PVC
- Degree of protection: IPX5 against water ingress

- **Benefits:** Maintains system integrity and performance under adverse environmental conditions.
- **Compatible with panels:** BRP. BRS. BRH.