Technical Datasheet

NOVEx I – Explosion isolation flap valve

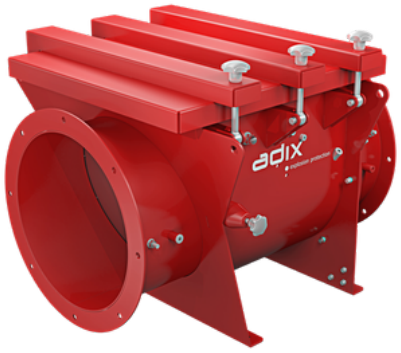
The **NOVEx I** butterfly isolation valve is a passive mechanical system designed to **prevent the propagation of an explosion through process piping**, thereby protecting equipment located upstream of the installation.

Its robust, self-operating design enables it to respond rapidly to a deflagration in the piping, creating a mechanical barrier that limits the transmission of the explosion to other process equipment.

The **NOVEx I** is certified in accordance with **EN 16447 for explosion isolation in ducts** and must be integrated into installations where the protected equipment is fitted with **venting or explosion suppression systems** that limit the back pressure generated during the event.

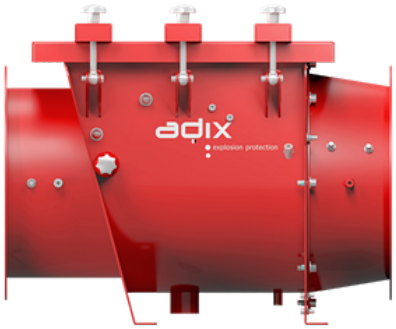
Its configuration is optimised for dust extraction and conveying installations, offering a reliable solution that is easy to integrate into existing industrial systems.

Key Advantages



- Passive explosion isolation requiring no power supply or activation systems.
- Simple and robust design, tailored for dust extraction and conveying processes.
- Wide range of diameters, from DN71 to 1000 mm.
- Flexible configuration using a wide range of monitoring and control accessories.
- ATEX certification in accordance with EN 16447, valid for a wide range of dusts, including metallic dusts.
- Compatibility with NFPA 69
- Easy integration into new or existing installations

Standards & Certification



- ATEX certification: LOM 11ATEX7047X in accordance with EN 16447 – Explosion isolation butterfly valves
- ATEX marking: Ex II D EN 16447
- Compliance with NFPA 69. (Additional conditions may apply to meet NFPA 69. Please consult ADIX.)

Applications

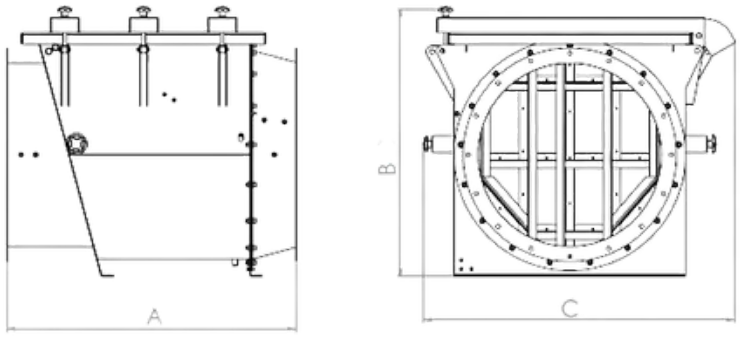
The NOVEx I butterfly isolation valve is designed for installation in dust extraction or conveying ducts where there is a risk of explosions spreading between pieces of process equipment. Typical applications:

- Dust extraction and filtration systems
- Cyclones and separators
- Storage silos and hoppers
- Elevators, mechanical conveyors
- Processes in the food, chemical, wood and biomass, paper and metallurgy industries

Main Characteristics

Dust type	Organic and inorganic dusts, including metallic dusts K_{st} ≤ 440 bar·m/s (MESG ≥ 1.6 mm)
Dust concentration	máx. 500 g/m^3
Materials	Painted carbon steel | Stainless teel AISI 304 | AISI 316 |
Nominal duct diameter	DN 71 a DN 1000 (DIN 24154 / R2, T2)
Installation	Horizontal
Assembly	PULL
Working temperature	-20 ºC to + 90ºC (Other options up to 150°C available on request)
* Isolation valves must only be installed on pipework connected to equipment protected by venting or explosion suppression systems that ensure a maximum permissible reduced pressure.	

Dimensions



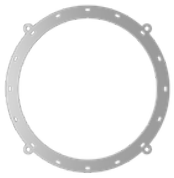
Diameter DN	71	100	200	300	400	500	600	710	800	1000
Width a (mm)	349	386	478	650	787	887	1040	1155	1245	1445
Height b (mm)	265	294	394	536	640	740	889	1005	1095	1295
Length c (mm)	440	469	569	669	769	869	969	1079	1169	1369
Weight (kg)	17	20	34	55	82	107	153	190	222	301
Pressure drops (MMCA)	1	10	15	25	35			40	45	50
Reduced overpressure (bar)*	2						1			
Installation distance (m)*	3-10						5-13			

*Please refer to the specifications for metal powder regarding overpressure and mounting distance

Accessories

> **Counterflanges.**
Connection elements for the safe installation of the valve in the duct.
Material: Carbon steel or stainless steel 304/316

- **Benefit:** They enable quick and secure integration into the process line.



> **Blockage detector / Flap position detector.**
Detection system for monitoring the position of the flap, in the normally open condition or after its closure and locking.

- Inductive detector for explosive atmospheres
- NAMUR power supply
- Threaded metal housing: M12 x 1 mm / L = 30 mm
- Connector: 1 x M12; coding: A; Contacts: gold-plated
- Ambient temperature: -20...80 °C
- Protection rating: IP67
- ATEX marking: Ex II 1D Ex ia IIIC T200 100° C Da Ta: -20...80°C

- **Benefit:** Facilitates monitoring of the flap position and allows activation of safety protocols or process shutdown.

> **Dust accumulation detector.**
Sensor for detecting dust build-up inside the valve.

- Capacitive detector for explosive atmospheres
- PNP supply
- Threaded housing: M30 x 1.5 mm / L = 150 mm
- Connection terminals: 0.34...1.5 mm²; cable sheath: Ø 5...9 mm; cable gland: M20 x 1.5
- Ambient temperature: -25...60 °C
- Protection rating: IP65; IP67
- ATEX marking: Ex II 3D Ex tc IIIC T90°C Dc

- **Benefits:** Recommended for processes with high dust load, where accumulation can compromise proper flap closure

> **Wear detector.**
Sensor designed to detect abrasion wear of the flap due to continuous product flow.

- Inductive detector for explosive atmospheres
- NAMUR supply
- Threaded metal housing: M12 x 1 mm / L = 30 mm
- Cable: 2 m, PVC; 2 x 0.34 mm²
- Ambient temperature: -20...80 °C
- Protection rating: IP67
- ATEX marking: Ex II 1G Ex ia IIC T5 Ga Ta -20...80 °C / Ex II 1D Ex ia IIIC T200 100°C Da Ta -20...80 °C

- **Benefits:** Enables anticipation of critical wear situations and planning of maintenance interventions

> **Differential pressure control.**

Equipment for measuring pressure on both sides of the valve.

- Differential pressure transmitter
- Range: 0 to 500 mm H_2O (50 mbar)
- Pmax: 750 mbar
- Contact: 2 relays
- Output: 4–20 mA
- Ambient temperature: -10...+60 °C
- Protection: IP65
- ATEX: Ex II 3D T85 °C

- **Benefits:** Useful for monitoring flow and detecting operational deviations in the system

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> **Automatic cleaning system.**

Pneumatic system that periodically injects compressed air to prevent product buildup.

- Recommended working pressure: 6–8 bar (max. 12 bar)
- Maximum flow rate: 0.26 m³/h
- Pneumatic connection: Ø 8 mm
- Adjustable cleaning cycles
- Ambient temperature: -10 °C to +50 °C
- Protection rating: IP 65
- ATEX marking: II 2D

- **Benefit:** Keeps the valve free of dust buildup, ensuring its proper operation. Recommended for very dusty processes or those involving abrasive materials, where it is critical to prevent accumulations that could interfere with valve closure.