Technical Datasheet

NOVEx II – Explosion isolation flap valve

NOVEx II. Explosion isolation flap valve is a passive mechanical isolation system designed to prevent the propagation of an explosion through process ducts, safeguarding connected equipment.

In the event of a deflagration, the overpressure generated within the duct causes the flap to close instantaneously, effectively blocking flames and combustion gases and preventing the transmission of the explosion to adjacent equipment.

The NOVEx II is supplied in a normally open configuration, allowing continuous process operation with minimal pressure drop. Its compact and robust design facilitates integration into new or existing installations while maintaining a high level of reliability and operational safety.

Key Advantages

- Passive mechanical isolation system, no electrical power required.
- High installation flexibility, suitable for horizontal or vertical mounting, in PUSH or PULL configurations.
- Compact design, ideal for limited spaces.
- Available in a wide range of sizes, from DN100 to DN1250.
- Robust construction, engineered for high dust loads and demanding industrial environments.
- Certified to European explosion isolation standards, suitable for a wide variety of dusts, including metallic dusts.
- Compatibility with NFPA69
- Easy installation on new or existing equipment.

Standards & Certification

- ATEX Certification: LOM 22ATEX1035X in accordance with EN 16447 – Explosion isolation flap valves, and EN 15089 – Explosion isolation systems
- ATEX Marking: Ex II D EN 16447
- NFPA 69 Compatibility: (To ensure compliance additional conditions may be required. Contact ADIX for guidance.)

Applications

The NOVEx II flap isolation valve is designed for industrial processes with dust explosion risks, where duct isolation between connected equipment is required.

Typical applications:

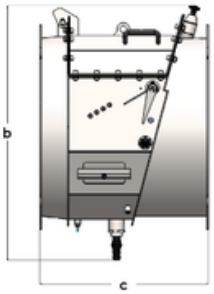
- Dust extraction and filtration systems
- Cyclones
- Storage silos and hoppers
- Elevators, pneumatic and mechanical conveyors
- Processes in the food, chemical, wood, paper, biomass, and metallurgical industries

Main Characteristics

Dust type	Organic and inorganic dusts, including metallic dusts K_{st} ≤ 305 bar·m/s, Pmax ≤ 9,2 bar, MIE ≥ 1 mJ, MIT ≥ 110 ºC, MESG = 1,065 mm										
Materials	Painted carbon steel | Stainless steel AISI304 | AISI316 | AISI310 | Wear-resistant steel										
Nominal duct diameter	DN 100 to DN 1250 (DIN 24154 / R2, T2)										
Installation	Horizontal, vertical, inclined										
Assembly	PULL or PUSH										
Elbows as part of the equipment	Multiple elbows are permitted provided that the sum of their angles does not exceed 270°, with a minimum radius-to-diameter ratio of 0.65										
Distance from obstacles on the protected side	DN < 500 mm: min. 5xD (diameter) in metres of straight section. DN ≥ 500 mm: no specific minimum length is required										
Working temperature	-20 ºC (ensure the product does not freeze) to + 90ºC (please enquire regarding other tempertures)										
Airflow (in PUSH mode)	100 ≤ DN ≤ 500: 18 m/s 500 < DN ≤ 1250: 10 m/s										
Dust concentration	max. 500g/m³										
Working pressure	max. 200 mbar										
Vacuum working pressure	max. -200 mbar										
Diameter DN	100	150	200	250	355	400	500	630	710	900	1000	1250
Max. P_{red} vessel	1 barg									0.5 barg		
Max. P_{red} vessel (for PUSH and/or metal dust)	1 barg							0.5 barg				
Recoil forces (kN) (in accordance with EN 14491:2006)	1.09		2.03	3.08	6.19	7.83	12.27	19.3	24.8	19.7	24.4	37.4
Distance from the area to be protected in the PULL configuration, where there are elbows in front of the valve:												
Min. distance organic dust	5 m	3 m	3.5 m					5 m				
Min. distance metal dust	5 m											
Max. distance org/met. dust	15 m											
Distance from the area to be protected in PULL mode, with elbows present both in front of and behind the valve, or only behind the valve*:												
Min. distance organic dust	---						3.5 m	5 m		7 m*		
Min. distance metallic dust	---						5 m			7 m*		
Max. distance org/met. dust	---						15 m					
PUSH distance	min. 5 m - máx. 15 m											
Min. PULL volume	0.5 m³	1 m³						2 m³		4 m³		
Min. PUSH volume	0.5 m³	1 m³						4 m³				

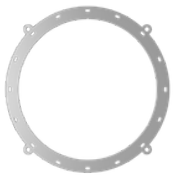
The valves may only be used in pipework connected to vessels fitted with explosion vents or suitable suppression systems that ensure a maximum reduced pressure.

Dimensions



Diameter DN	100	150	200	250	355	400	500	630	710	900	1000	1250
Width a (mm)	305	305	355	405	510	555	655	785	865	1055	1155	1405
Height b (mm)	425	425	475	525	630	675	760	904	984	1174	1274	1524
Length c (mm)	689	389	399	408	428	436	473	607	679	849	939	1163
Weight (kg)	27	20	24	31	44	50	67	111	135	199	239	357
Screw units	8	16				24		32		48		64
Screw size	M8	M10						M12				M16

Accessories



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

- **Benefits:** Facilitate secure installation

> **Position Detector / Blockage Detector.**
Detection system for monitoring the flap position, either in the normally open condition or after closure and locking.

- Inductive detector for explosive atmospheres
- PNP supply
- Threaded metal housing: M12 x 1 mm / L = 45 mm
- Connector: 1 x M12; coding: A; Contacts: gold-plated
- Ambient temperature: -25...60 °C
- Protection rating: IP67
- ATEX marking: Ex II 3G Ex ec IIC T6 Gc / Ex II 3D Ex tc IIIC T85°C Dc

- **Benefits:** Allows verification of system operation after an event and monitoring of flap position

> **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

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> **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.**

Internal pneumatic cleaning system using periodic compressed air injection.

- Recommended working pressure: 6–8 bar (max. 12 bar)
- Maximum flow: 0.26 m³/h
- Pneumatic connection: Ø 8 mm
- Adjustable cleaning cycles
- Ambient temperature: -10...+50 °C
- Protection rating: IP65
- ATEX marking: II 2D

- **Benefits:** Recommended for very dusty or abrasive processes, where preventing accumulation that could interfere with valve closure is critical