

PRODUCT INFORMATION

EXPLOSION ISOLATION



REMBE® GMBH
SAFETY+CONTROL

Q-FlapCompact II

Q-FlapCompact II Plus

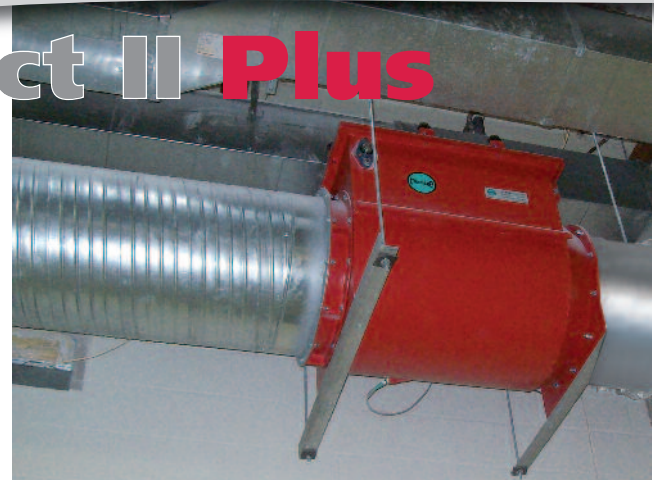


Explosion Isolation of Dedusting and Aspiration Lines with Non-Return Valve

Numerous processes can cause explosive dust/air mixtures within industrial systems (i.e. dust collectors, mixing machines, fluid bed granulators, mills, etc.). If ignition sources cannot be eliminated due to process conditions, these systems are often equipped with constructive explosion protection measures like venting or suppression. This way connected ductworks are decoupled from the protected containers and flames and explosion pressure will not be conveyed into other areas.

With the non-return explosion valve series Q-FlapCompact II explosions in nearly all industrial sectors can effectively be isolated. The Q-Flap is certified as a protective system according to EU guideline 94/9/EG (ATEX 114) and approved acc. to EN 16447 for decoupling explosions of organic and inorganic dusts.

The Q-FlapCompact II is applicable for a max. K_{St} -value of 300 bar x m/s and for reduced pressure (P_{red}) up to 0.7 bar (10.15 psi).



Features



- A fully approved ATEX protection system for decoupling of dust explosions with organic and inorganic dusts
- A cost effective passive explosion protection system without actuation sensors
- Integrated fail-safe locking device for St2 dusts (damping system for St1 dusts) IAW DIN EN 16447
- Quick release opening lid and full reversal flap for ease of servicing, without removal from ductwork or piping.
- Monitoring kit for supervised protection processes and extended maintenance intervals*

* option



Technical Data

Q-FlapCompact II										
Type		140	160	200	250	280	315	355	400	
Nominal size	NS	140	160	200	250	280	315	355	400	
Dimensions [mm]	Length L	420	490	530	590	630	670	750	750	
	Width W	380	455	490	540	570	590	610	670	
	Height H	430	462	505	530	552	590	642	695	
	S	390	420	460	480	520	540	590	645	
Weight	kg	27	31	38	46	50	54	82	92	
Pressure loss at 20 m/s	Pa	approx. 400	approx. 400	approx. 400	approx. 320	approx. 330	approx. 340	approx. 370	approx. 400	
Maximum opening angle flap blade		20°							30°	
Possible dust explosion class		St1 and St2							St1	
Max. K_{St} -value	bar x m/s	300							200	
Maximum reduced pressure (pred max) in the filter (vessel) ¹⁾	bar	0.7							0.5	
Pressure resistance of the back pressure flap ¹⁾	bar	1.5	0.95					0.6		
Minimum mounting distance (St1)	m	2.6	2					2.6		
Minimum mounting distance (St2)	m	3.6	3.5					not allowed		
Maximum mounting distance (St1)	m	6.6	7					6.6		
Maximum mounting distance (St2)	m	7	7.5					not allowed		

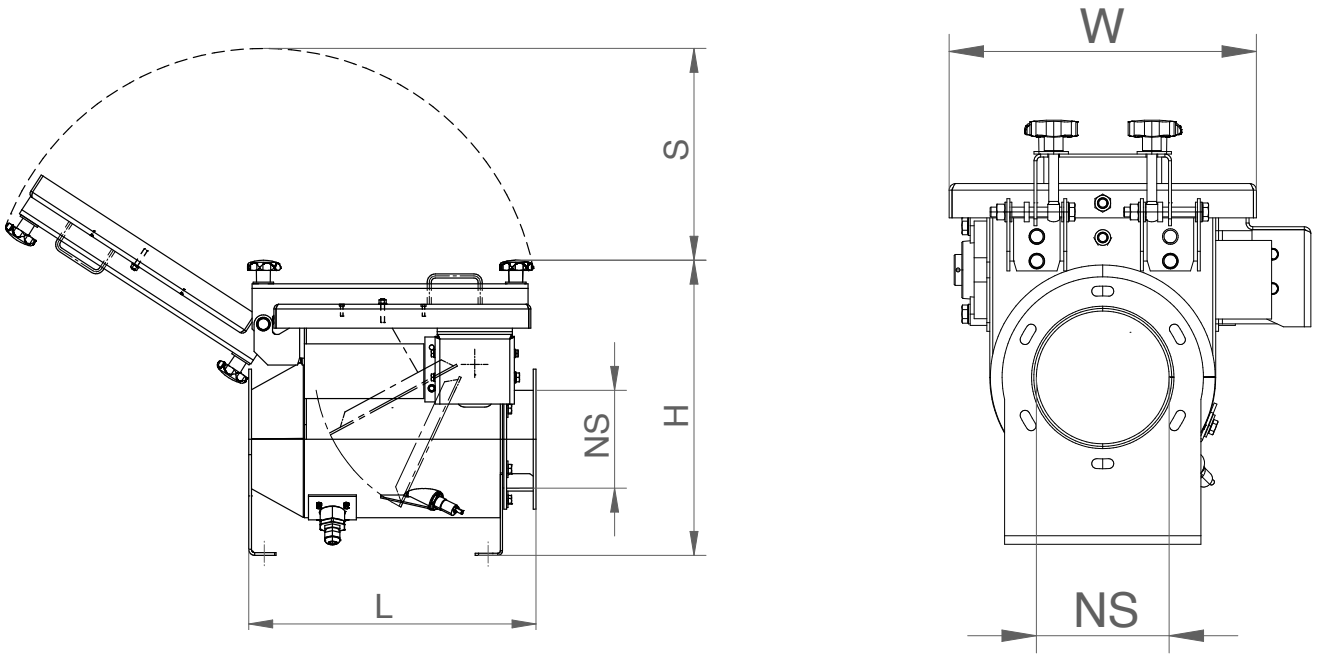
¹⁾ excess pressure

Type		450	500	560	630	710	800	900	1000	
Nominal size	NS	450	500	560	630	710	800	900	1000	
Dimensions [mm]	Length L	820	870	930	1,090	1,190	1,320	1,470	1,625	
	Width W	730	800	840	1,050	1,150	1,230	1,360	1,450	
	Height H	730	795	846	970	1,060	1,190	1,295	1,400	
	S	700	760	820	880	950	1,060	1,190	1,310	
Weight	kg	99	118	152	220	260	305	360	420	
Pressure loss at 20 m/s	Pa	approx. 430	approx. 450	approx. 450	approx. 500	approx. 500	approx. 500	approx. 500	approx. 500	
Maximum opening angle flap blade		30°								
Possible dust explosion class		St1								
Max. K_{St} -value	bar x m/s	200								
Maximum reduced pressure (pred max) in the filter (vessel) ¹⁾	bar	0.5								
Pressure resistance of the back pressure flap ¹⁾	bar	0.6								
Minimum mounting distance (St1)	m	2.6			3					
Minimum mounting distance (St2)	m	not allowed								
Maximum mounting distance (St1)	m	6.6			7					
Maximum mounting distance (St2)	m	not allowed								

¹⁾ excess pressure

Class	II 3D c T 60 °C (for Q-FlapCompact II-St1 only, suitable for zone 22)
Mounting position	horizontally, pull flow applications (fan behind Q-FlapCompact II)
Air flow velocity	from 15 to 30 m/s
Temperatures	from -10 °C to 60 °C
Material	Housing: S235JRG2 / flap blade: stainless steel
Paint finish	RAL 3000 blazing red (other colours optional)

GBP-QFLCI-1213410 - valid from 2012-10-18 - Subject to revision without notice

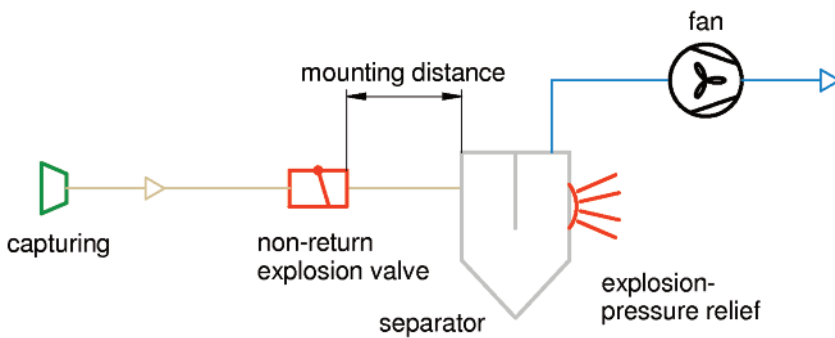


Technical data see page 2



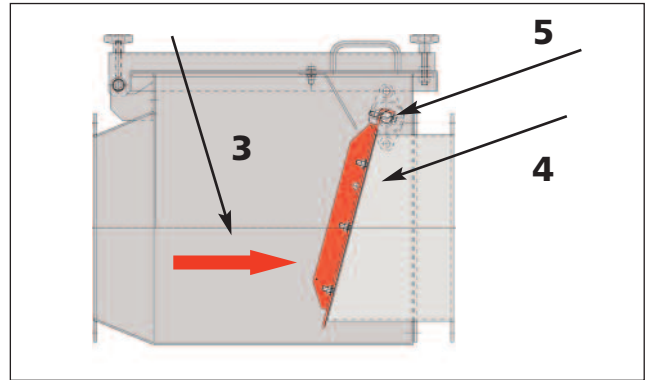
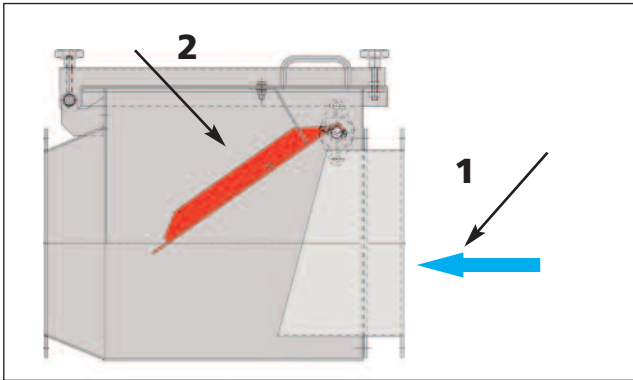
The non-return valve can be opened completely, that means quick maintenance without dismantling the device.

The following application example of an exhaust system equipped with an explosion pressure relief vent shows the operating principle of a Q-FlapCompact II non-return valve:



Applications

- **Explosion decoupling of dry dust separators**
 - when grinding glass-fibre reinforced components
 - in the chemical and pharmaceutical industries
 - in the wood-processing industry
 - for varnish dusts, etc.
 - for blasting plants
- **Special Applications, e.g. air intake of mills**
- **The system is also suitable for dust concentrations beyond the lower explosion limits.**



Standard Operation

1. Direction of air flow
2. Flap remains open by means of process flow.

During operation, the flap remains in the open position by means of the process air flow. At standstill, the flap closes due to its own weight. When the system is starting, opening of the flap is damped by an integrated fail-safe locking device (St2 dust) resp. by a damping system (St1 dust).

Explosion Event

3. Explosion shock wave
4. Flap is closed by explosion
5. The integrated fail-safe locking mechanism used in St2 dust applications prevents the flap from reopening until the system is reset.

In the event of an explosion within a protected system the Q-FlapCompact II flap closes due to the pressure front spreading within the ductwork. Due to resultant low pressures, there is a perceived risk of the explosion flame front and pressure wave proceeding further downstream, endangering plant and personnel. The integrated fail-safe locking device used in St2 dust applications negates this risk in accordance with EN 16447.

Option: Monitoring with **Q-FlapCompact II Plus**

With the patented protection system Q-FlapCompact II Plus maintenance intervals are extended. The wear-and tear sensor monitors potential abrasion on the stainless steel flap. The additionally integrated clogging sensor indicates any kind of product accumulation in the flap area ensuring safe closing of the flap.

Quality and Certifications

All REMBE® protection systems and devices are certified IAW EU directive 94/9/EG (ATEX 114) and meets NFPA guidelines. Each individual batch (lot) is manufactured and tested in compliance with the requirements of EN 16447.

REMBE® provide support in simulating explosion events, in calculating the required venting areas and in selecting the correct product for any given installation/location.

Your benefits

- Certified to the more stringent standard EN 16447 (Released Sept 2012)
- Significant system reassurance and reduced cost of ownership for end users by ease of maintenance and relaxed maintenance frequency
- Available in sizes from DN140 through to DN1000 Special sizes on request (ie DN100)