RICO Sicherheitstechnik AG
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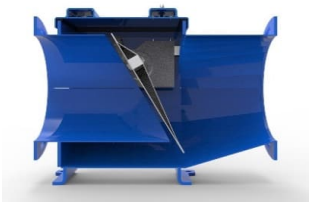
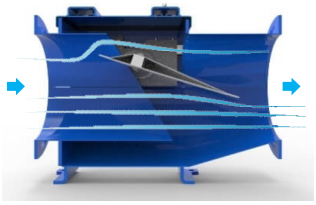
Installation guideline Explosion Isolation Flap Valve REDEX® Flap

Function

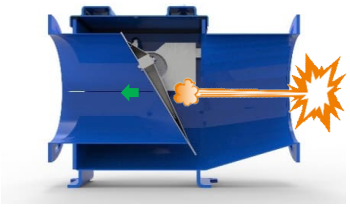
Basic position



In operation



In case of an explosion



Advantages

- Pressure resistant design
- Certified safety system for pull applications according to EN 16447:2014 (3.4)
- Position indication for basic position and locked position with inductive switches
- Flanges according to DIN 24154 class 2
- Mechanical locking device

Certification

Zone inside: Ex II 1D / zone 20, 21, 22
Zone outside: The zone outside is depending on the execution of the attached parts or rather the switches

Description

Function	Installation position
for organic dust, single acting	horizontal

Technical data

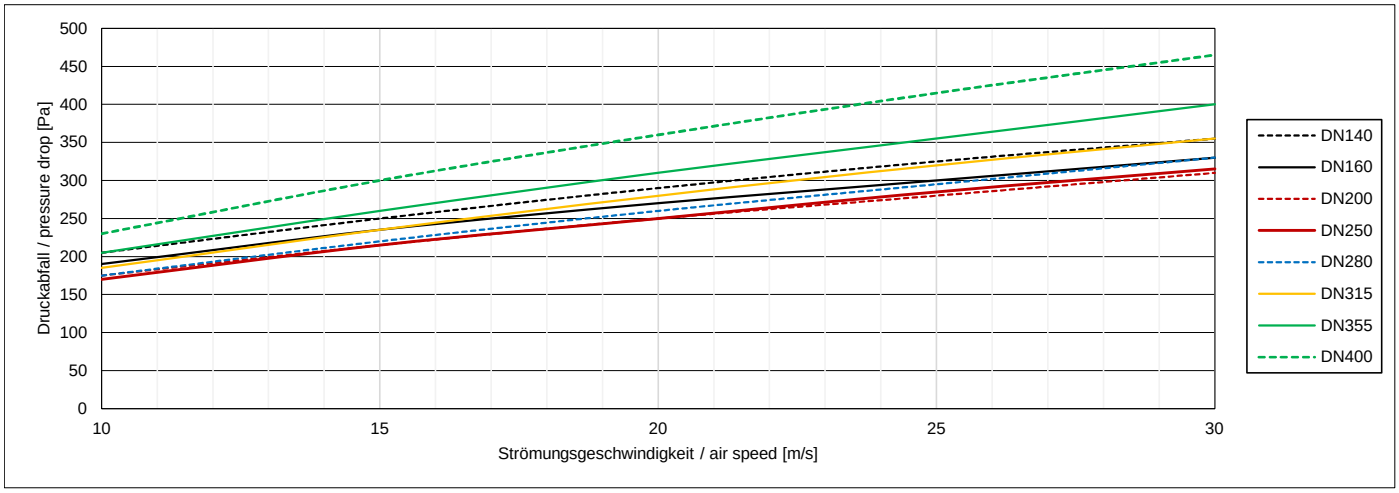
Max. air speed against explosion direction = 35m/s, min. air speed against explosion direction or rather in normal operation = 12m/s
Min. closing pressure on the valve in case of an explosion ≥ 0.05bar

		Nominal size							
		DN140	DN160	DN200	DN250	DN280	DN315	DN355	DN400
Test certificate FSA (year) / ATEX (no.)		14 / 1653 X	14 / 1653 X	14 / 1653 X	14 / 1653 X	14 / 1653 X	14 / 1653 X	14 / 1653 X	14 / 1653 X
Maximum explosion pressure in the vessel at 20°C	$p_{red\ max}$ [bar]	1.9	1.9	1.9	1.5	1.5	1.5	1.5	1.5
Maximum explosion pressure on the Explosion Isolation Flap Valve	$p_{ex\ max}$ [bar]	3.4	3.4	3.4	2.0	2.0	2.0	2.0	2.0
Organic dust with K_{St} ≤ 230	**bar m s-1**								
Installation distance for vessel size	min. m	1	1	1	3.5	3.5	3.5	3.5	3.5
≥ 1.0m³	max. m	8	8	8	7	7	7	7	7
Installation distance for vessel size	min. m	1	1	1	2.5	2.5	2.5	2.5	2.5
≥ 4.4m³	max. m	8	8	8	7	7	7	7	7
Organic dust with K_{St} ≤ 300	**bar m s-1**								
Installation distance for vessel size	min. m	2.5	2.5	2.5	-	-	-	-	-
≥ 4.4m³	max. m	8	8	8	-	-	-	-	-

MESG: ≥ 1.44 mm
The certification tests have been performed with corn starch (minimum ignition temperature dust cloud (MIT) =380°C und MIE = 4mJ (with inductance in the ignition circuit).

Pressure drop

Pressure drop [Pa]		Nominal size							
		DN140	DN160	DN200	DN250	DN280	DN315	DN355	DN400
Air speed [m/s]	10	205	190	175	170	175	185	205	230
	15	250	235	215	215	220	235	260	300
	20	290	270	250	250	260	280	310	360
	25	325	300	280	285	295	320	355	415
	30	355	330	310	315	330	355	400	465



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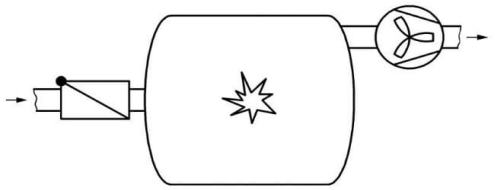
Installation guideline Explosion Isolation Flap Valve REDEX® Flap

Requirements on the installation situation

Installation situation	Description and requirements
Pull application according to EN 16447:2014 (3.4)	The certification of this flap valve is valid for pull applications.  Source: EN 16447:2014 (3.4)
Vessel	The applicable volume of the attached vessel is between 1.0m^3 and 100.0m^3 (other vessel sizes only after consultation). The back flap may just be used in combination with vented vessels which are equipped with non-reclosable venting equipment.
Operating temperature	Minimum/maximum operating temperature: - 20°C...+80°C (higher temperatures depending on attached parts). At operating temperatures <+1°C it has to be ensured that the flap cannot freeze. A frozen mechanism affects the proper function of the flap valve negatively.
Pipes	Any combination of pipe bends can be installed between the container and the back flap valve as well as after the back flap valve. Up to four pipe bends can be used at minimum installation distance. Therefor radius combinations of 1.5D and 3D were explicitly tested. The pressure shock resistance of the pipeline on both sides of the back flap valve must be designed in accordance with the used safety concept.If the back flap valve is installed at an open pipe end, protective measures in accordance with ISO 13857 must be implemented on the side of the back flap valve facing away from the explosion in order to avoid the risk of injury.
Process conditions	**The intended use of the back flap has always to be ensured.** Further information can be found in the operation instructions.
Support	The valve flap has to be supported separately and independent from the pipe. You also have to ensure that the valve is installed without tension.
Maintenance area	For the maintenance there has to be a good accessibility to the flap valve. Especially there has to be enough space to open the housing cover completely.

Dimensions

Dimensions [mm]		Nominal size							
		DN140	DN160	DN200	DN250	DN280	DN315	DN355	DN400
Length	L1	420.0	440.0	440.0	590.0	620.0	620.0	620.0	620.0
Threads position	L2	243.0	254.0	255.0	330.0	334.0	334.0	334.0	334.0
Distance	L3	32.0	32.0	32.0	34.0	34.0	34.0	34.0	34.0
Width	B1	314.0	334.0	374.0	466.0	496.0	531.0	571.0	616.0
Distance	B2	170.0	180.0	195.0	230.0	234.0	260.0	245.0	260.0
Height	H1	324	335	372	468	497	532	574	619
Height (cover open)	H2	554.0	586.0	663.0	837.0	895.0	966.0	1047.0	1137.0
Threads position	H3	153.0	165.0	184.0	230.0	244.0	261.0	283.0	305.0
Flange diameter	D1	212.0	232.0	273.0	323.0	363.0	398.0	438.0	484.0
Flange thickness	S	6.0	6.0	6.0	6.0	8.0	8.0	8.0	8.0
Pitch circle diameter	TK	182.0	200.0	241.0	292.0	332.0	366.0	405.0	448.0
Quantity of the holes	n	8	8	8	8	8	8	8	12
Hole diameter	D2	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
Pitch	α	22.5°	22.5°	22.5°	22.5°	22.5°	22.5°	22.5°	15.0°
Hole diameter	D3	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
Weight (net)	kg	21.0	22.0	23.0	48.0	55.0	59.0	65.0	71.0
Sketch