

Explosion Isolation Flap Valve CARZ-N - protective system



Explosion Isolation Flap Valve type CARZ-N is designed as explosion pressure resistance equipment, which is able to prevent a transmission of dangerous effects of explosion pressure wave and flames front to upstream areas. Certified according to EN 16447.

Description

Welded construction in RAL 5009 blue painted steel plate.

Function

During air flow generated by main fan, the Flap plate is open. In case of an explosion in the downstream equipment (e.g. dust collector) a pressure wave will force to close the Flap plate and lock in position. Large opening angle ensure low pressure drop. When Flap plate is closed it makes an effective barrier against approaching flame front. This prevent the explosion from being transmitted to upstream work areas.

Specifications

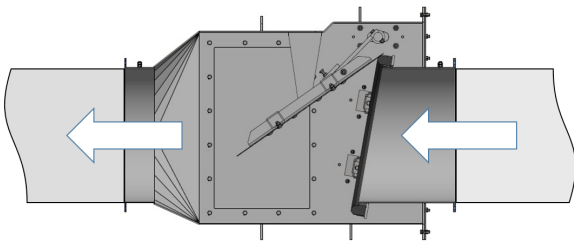
Combustible dust properties	Size: 450 - 630 mm	
Kst	Kst ≤ 200 bar · m · s ⁻¹	Kst ≤ 300 bar · m · s ⁻¹
MESG*	≥ 1,3 mm	
Explosion class	St1	St2
* Maximum Experimental Safe Gap		

For dust MESG (mm) is calculated from MIE (mJ) and MIT (°C) using the following equation (Eckhoff, 2003)**:

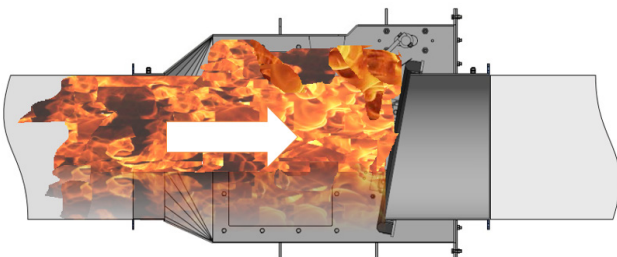
$$MESG = 1,01 \times (MIE \times (MIT + 273) / 273) ^ 0,157$$

** Reference to EN 16447:2014, chapter 5.2.3

Suction direction



Explosion direction



Marking



The marking is based on product certification:

- FTZU 16 ATEX 0192X by N.B. No. 1026 and Quality System approval by N.B.



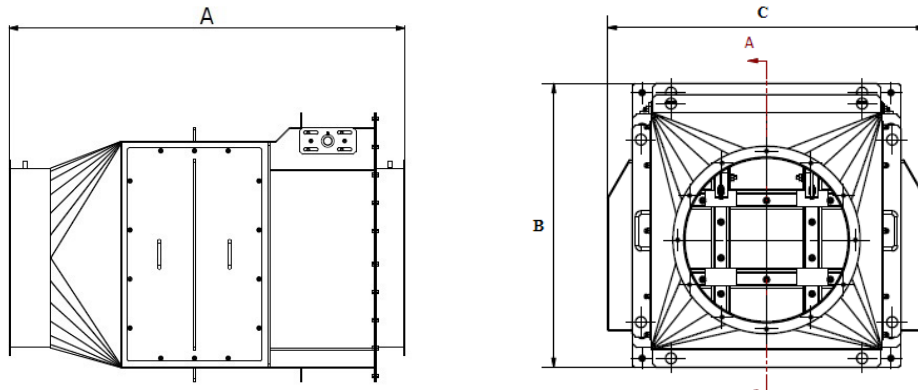
- IECEx FTZU 17.0015 - Product certification according to International Certification System IECEx.

Parameters for PULL	Size: 450 mm	Size: 500 - 630 mm
Operating temperature range	from -20°C to +70°C	
Ambient Temperature	from -20°C to +60°C	
Max. reduced explosion pressure in vessel - p _{red. max.}	St1: 50 kPa St2: 40 kPa	
Max. dust concentrations in duct	St1: Any St2: <LEL***	
Min. Vessel size	0,9 m ³	1,6 m ³
Explosion shock resistant pressure in CARZ-N	1 bar	
Inclination of the CARZ- N	Horizontally	
Protection method of connected vessel	Explosion vents or Explosion doors (not self-closing type)	

*** Lower Explosion Limit = MEC Minimum Explosion Concentration

Parameters for PUSH	Size: 450 - 630 mm
Operating temperature range	from -20°C to +70°C
Ambient Temperature	from -20°C to +60°C
Max. reduced explosion pressure in vessel - p _{red. max.}	St1: 50 kPa
Max. dust concentrations in duct	St1:Any
Min. Vessel size	1,6 m ³
Explosion shock resistant pressure in CARZ-N	1 bar
Inclination of the CARZ-N	Horizontally
Protection method of connected vessel	Non-reclosing vent devices, reclosing vent devices or suppression

Dimensions

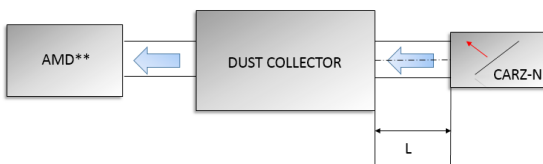


Flap valve size ØD	Dimensions [mm]			Weight [kg]	Part number					
	A	B	C		St1			St2		
					FL	QF	NW	FL	QF	NW
450 mm	1109	973	1118	175	73007814	73007834	73007815	73007816	73007835	73007817
500 mm	1193	1012	1168	200	73007836	73007838	73007837	73007839	73007841	73007840
560 mm	1294	1040	1228	224	73007842	73007844	73007843	73007845	73007847	73007846
630 mm	1409	1129	1298	260	73007848	73007850	73007849	73007851	73007853	73007852

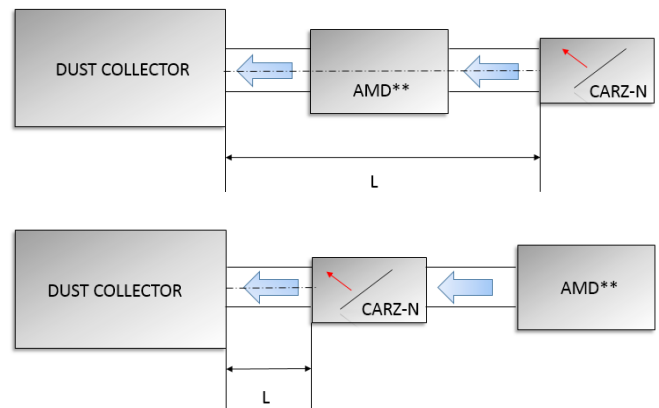
FL - bolted flange, QF - flange for Quick Fittings type ducting system, NW - bolted flange according to standard DIN 24154-R2.

Special application requirements

PULL configuration



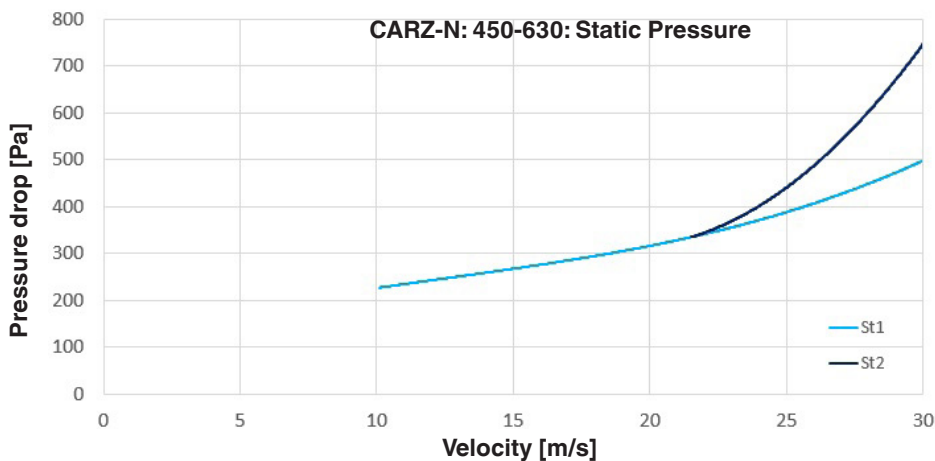
PUSH configuration



Parameter	Size 450 - 630 mm
Elbows	straight duct or max. 2 elbows 90 dgr
L min	5,5 m for PULL 5 m for PUSH
L max	10 m
Max. flow velocity	30 m · s ⁻¹

Chart of pressure drop vs. velocity

**AMD=Air moving device or fan



Accessories

Manufacturer offers a Flap lock indicator:

- Lock indicator zone 22 external - part number: 73007978.
- Lock indicator non-zone external - part number: 73007979.