Explosion Isolation Flap Valve CARZ - protective system.

Explosion Isolation Flap Valve type CARZ is design 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 16447:2014.**

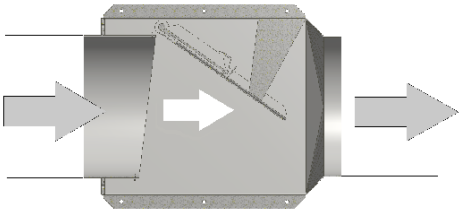
Description

Welded construction in RAL 5009 blue painted steel plate or stainless steel with strong rubber seal, which is available upon request.

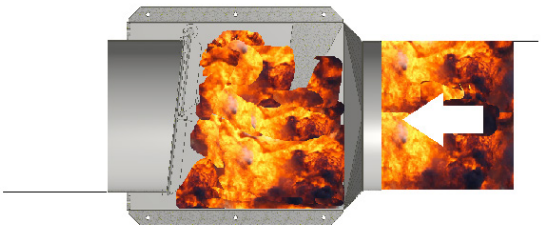
Function

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.

Suction direction



Explosion direction



Specifications

Parameters	Ø 160mm	Ø180 - Ø400mm
Operating temperature range	Min. -20°C Max. +70°C	
Ambient Temperature	Min.-20°C Max. +60°C	
Flow velocity	Max. 30 m/s	
Max. reduced explosion pressure - $p_{red\ max}$	0.45 bar	
Max. dust concentrations in duct.	Any	<LEL*
Min. Vessel size	0.4 m^3	0.9 m^3
Average Maximum Explosion Pressure - maximum pressure in CARZ	1 bar	0.9 bar
Flow applications	Push/Pull	
Inclination of the CARZ	Horizontally	
Protection method of connected vessel	Explosion vents or suppression	

* Lower explosion Limit..

Dust combustion properties	Data
Kst	≤ 200 bar · m · s^{-1}
MESG*	> 2 mm
Explosion class	St1

* Maximum Experimental Safe Gap.

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

$$MESG=1,01*(MIE*(MIT+273)/273)^{0,157}$$ *

Marking

CE 1026 Ex D St1

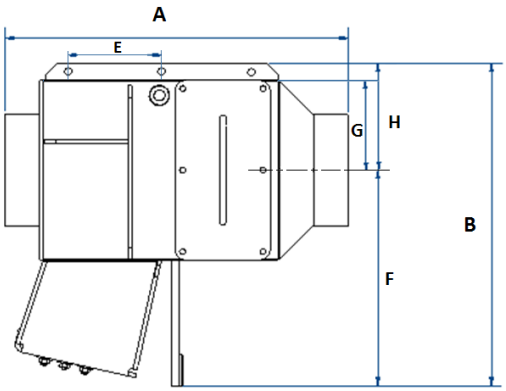
The marking is based on product certification:

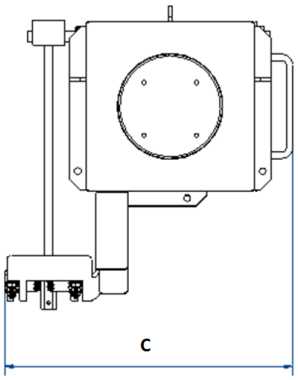
FTZU 15 ATEX 0128X by N.B. No. 1026 and Quality System approval by N.B.

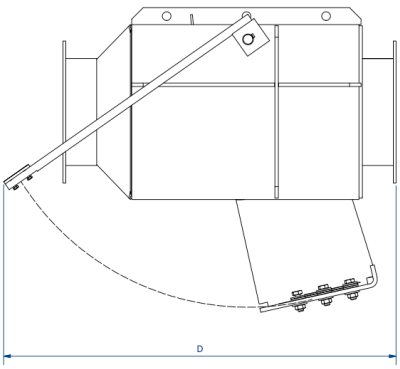
CARZ cannot be used if Ex zone is around it.

*Reference to **EN 16447:2014**, chapter 5.2.3.

Dimensions





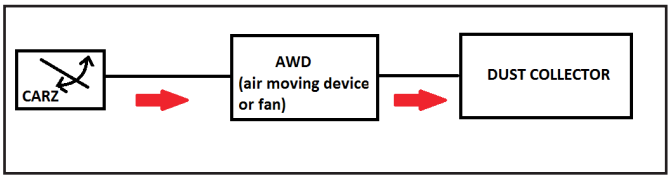


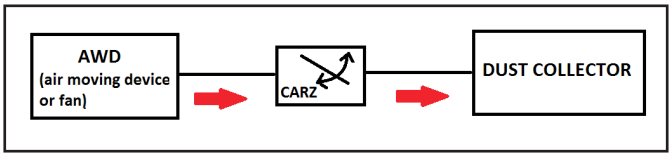
Flap valve size ØD	Dimensions [mm]								Weight [kg]	Part number					
	A	B	C	D	E	F	G	H		FL	QF	NW**	Stainless steel version		
													FL	QF	NW**
160mm	495	470	435	581	196	310	130	155	23	73001200	73001224	73001212	73000301	73000315	73000308
180mm	515		455		206	301	140	165	26	73001201	73001225	73001213	73000302	73000316	73000309
200mm	535		475		216	291	150	175	29	73001202	73001226	73001214	73000303	73000317	73000310
250mm	585		525	585	241	266	175	200	36	73001204	73001228	73001216	73000304	73000318	73000311
315mm	650	495	605	650	273	230	213	253	45	73001207	73001231	73001219	73000305	73000319	73000312
350mm*	685	530	640	685	291	217	225	265	50	73001209	73001233	73001221	73000306	73000320	73000313
400mm	735	580	690	735	316	198	250	290	57	73001211	73001235	73001223	73000307	73000321	73000314

* for NW flange diameter 355mm
** flange NW acc. DIN 24154-R2

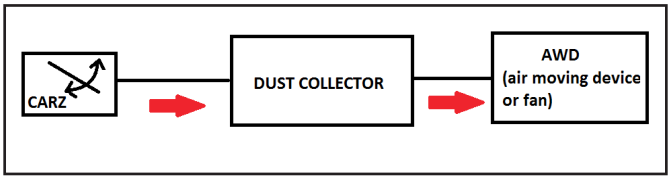
Special application requirements

PUSH configuration





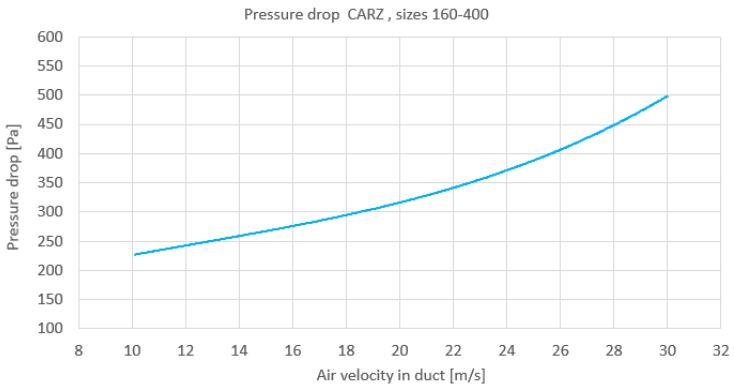
PULL configuration



Parameter	Ø 160mm	Ø 180 – Ø 400mm
Elbows	Straight duct and max. 2 elbows 90°	Straight duct and max. 2 elbows 90°
L1* min	3 m	5 m
L1* max	8 m	10 m

L1 - Installation distance from the vessel, where the explosion could occure, to the CARZ.

Chart of pressure drop vs. air velocity in duct



Accessories

Explosion Isolation Flap Valve type CARZ may be equipped with flanged inlet / outlet or **QF** (quick fitting).

Manufacturer offers a locking detection sensor (art. number - 73001236), which shows when the Flap plate is fully closed.