

Explosion Isolation Flap Valve CARZ

Explosion Isolation Flap Valve CARZ - protective system.



Explosion Isolation Flap Valve type CARZ 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.

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.

- **Independently tested according to current standards and regulations**
- **Compliant with most international dust explosion protection codes (ATEX and NFPA68)**
- **Widest range of sizes, applications and filter system configurations on the market (incl. approval for positive and negative pressure systems)**
- **Manufactured fully by Nederman under certified quality assurance system, ensuring highest level of quality and reliability**

| | |
|---|---|
| Product name | Explosion Isolation Flap Valve CARZ |
| Material | Welded carbon steel, painted RAL5009 |
| Operating temperature range | -20°C - +70°C (Min 0 F Max 160 F) |
| Ambient temperature range | -20°C - +60°C (Min 0 F Max 140 F) |
| Note | LEL = Lower Explosion Limit = MEC Minimum Explosion Concentration |
| Explosion Class ATEX | St1 |
| Max velocity in duct (m/s) | 30 |
| Minimum velocity in duct | 0 |
| Install type | Push and Pull |
| Kst (bar m/s) | 200 |
| Maximum reduced pressure, Pred (bar) | 0,45 |





















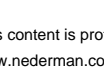


Explosion Isolation Flap Valve CARZ

| Diameter (mm) | Connection | Weight (kg) | Dust Concentration in duct | Minimum vessel size, push (m ³) | Minimum vessel size, pull (m ³) | [model] |
|---------------|------------|-------------|----------------------------|---|---|-----------|
| 160 | FL | 23 | Any | 0,4 | 0,4 | 73001200 |
| 180 | FL | 26 | < LEL | 0,9 | 0,9 | 73001201* |
| 200 | FL | 29 | < LEL | 0,9 | 0,9 | 73001202* |
| 250 | FL | 36 | < LEL | 0,9 | 0,9 | 73001204* |
| 315 | FL | 45 | < LEL | 0,9 | 0,9 | 73001207* |
| 350 | FL | 50 | < LEL | 0,9 | 0,9 | 73001209* |
| 400 | FL | 57 | < LEL | 0,9 | 0,9 | 73001211* |
| 160 | NW | 23 | Any | 0,4 | 0,4 | 73001212 |
| 180 | NW | 26 | < LEL | 0,9 | 0,9 | 73001213* |
| 200 | NW | 29 | < LEL | 0,9 | 0,9 | 73001214* |
| 250 | NW | 36 | < LEL | 0,9 | 0,9 | 73001216* |
| 315 | NW | 45 | < LEL | 0,9 | 0,9 | 73001219* |
| 355 | NW | 50 | < LEL | 0,9 | 0,9 | 73001221* |
| 400 | NW | 57 | < LEL | 0,9 | 0,9 | 73001223* |
| 160 | QF | 23 | Any | 0,4 | 0,4 | 73001224 |
| 180 | QF | 26 | < LEL | 0,9 | 0,9 | 73001225* |
| 200 | QF | 29 | < LEL | 0,9 | 0,9 | 73001226* |
| 250 | QF | 29 | < LEL | 0,9 | 0,9 | 73001228* |
| 315 | QF | 36 | < LEL | 0,9 | 0,9 | 73001231* |
| 350 | QF | 45 | < LEL | 0,9 | 0,9 | 73001233* |
| 400 | QF | 57 | < LEL | 0,9 | 0,9 | 73001235* |
| 160 | FL | 23 | Any | 0,4 | 0,4 | 73000301 |
| 180 | FL | 26 | < LEL | 0,9 | 0,9 | 73000302* |
| 200 | FL | 29 | < LEL | 0,9 | 0,9 | 73000303* |
| 250 | FL | 36 | < LEL | 0,9 | 0,9 | 73000304* |
| 315 | FL | 45 | < LEL | 0,9 | 0,9 | 73000305* |
| 350 | FL | 50 | < LEL | 0,9 | 0,9 | 73000306* |
| 400 | FL | 57 | < LEL | 0,9 | 0,9 | 73000307* |
| 160 | NW | 36 | Any | 0,4 | 0,4 | 73000308 |
| 180 | NW | 26 | < LEL | 0,9 | 0,9 | 73000309* |
| 200 | NW | 29 | < LEL | 0,9 | 0,9 | 73000310* |
| 315 | NW | 45 | < LEL | 0,9 | 0,9 | 73000312* |
| 355 | NW | 50 | < LEL | 0,9 | 0,9 | 73000313* |
| 400 | NW | 57 | < LEL | 0,9 | 0,9 | 73000314* |
| 160 | QF | 23 | Any | 0,4 | 0,4 | 73000315 |
| 180 | QF | 26 | < LEL | 0,9 | 0,9 | 73000316* |
| 200 | QF | 29 | < LEL | 0,9 | 0,9 | 73000317* |
| 250 | QF | 29 | < LEL | 0,9 | 0,9 | 73000318* |
| 315 | QF | 36 | < LEL | 0,9 | 0,9 | 73000319* |
| 350 | QF | 45 | < LEL | 0,9 | 0,9 | 73000320* |
| 400 | QF | 57 | < LEL | 0,9 | 0,9 | 73000321* |
| 250 | NW | | < LEL | 0,9 | 0,9 | 73000311* |

*LEL = Lower Explosion Limit = MEC Minimum Explosion Concentration

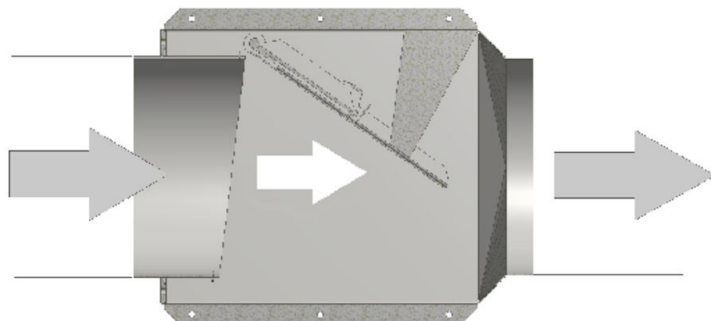
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| | [accessory] | [partno] |
|---|-------------------------------------|----------|
| | CARZ Locking Sensor set | 73001236 |
|  | CARZ support frame suspended 160 | 73001558 |
|  | CARZ support frame suspended 180 | 73001559 |
|  | CARZ support frame suspended 200 | 73001560 |
|  | CARZ support frame suspended 250 | 73001561 |
|  | CARZ support frame suspended 315 | 73001562 |
|  | CARZ support frame suspended 350 | 73001563 |
|  | CARZ support frame suspended 400 | 73001564 |
|  | CARZ support frame suspended 450 | 73001565 |
|  | CARZ support frame suspended 500 | 73001566 |
|  | CARZ support frame suspended 600 | 73001567 |
|  | CARZ support frame suspended 710 | 73001568 |
|  | CARZ support frame suspended 800 | 73001569 |
|  | CARZ support frame suspended 900 | 73001570 |
|  | Carz support frame suspended 1000 | 73001571 |
|  | CARZ support frame suspended 1000 | 73001572 |
|  | CARZ support frame wall-hanging 160 | 73001573 |
|  | CARZ support frame wall-hanging 180 | 73001574 |
|  | CARZ support frame wall-hanging 200 | 73001575 |
|  | CARZ support frame wall-hanging 250 | 73001576 |
|  | CARZ support frame wall-hanging 315 | 73001577 |
|  | CARZ support frame wall-hanging 350 | 73001578 |

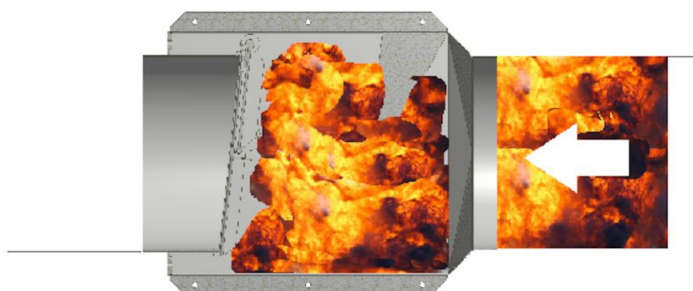
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| | [accessory] | [partno] |
|---|--------------------------------------|----------|
|  | CARZ support frame wall-hanging 400 | 73001579 |
|  | CARZ support frame wall-hanging 450 | 73001580 |
|  | CARZ support frame wall-hanging 500 | 73001581 |
|  | CARZ support frame wall-hanging 560 | 73001582 |
|  | CARZ support frame wall-hanging 630 | 73001583 |
|  | CARZ support frame wall-hanging 710 | 73001584 |
|  | CARZ support frame wall-hanging 800 | 73001585 |
|  | CARZ support frame wall-hanging 900 | 73001586 |
|  | CARZ support frame wall-hanging 1000 | 73001587 |

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Suction direction



Explosion direction

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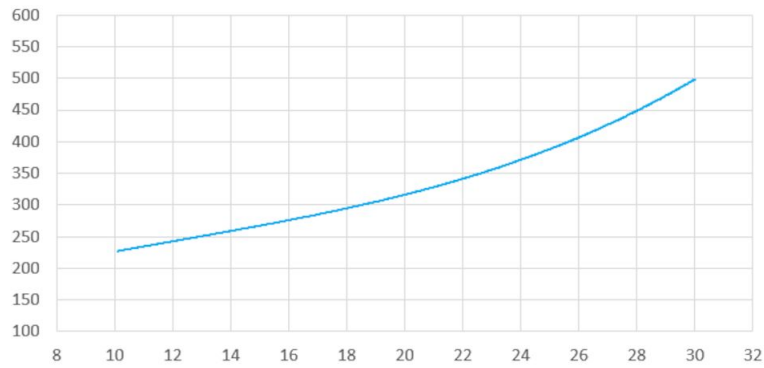
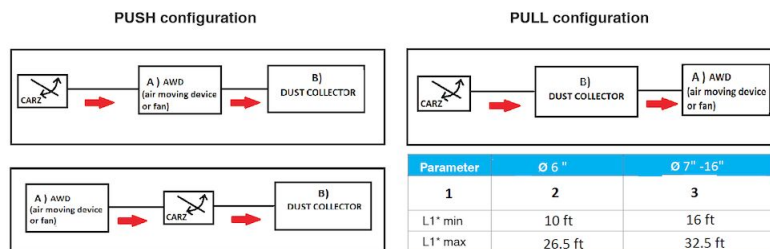


Chart of pressure drop vs. air velocity in duct

Pressure drop CARZ, sizes 160 -400

X- Axis: Air velocity in duct (m/s)

Y-Axis: Pressure drop (Pa)



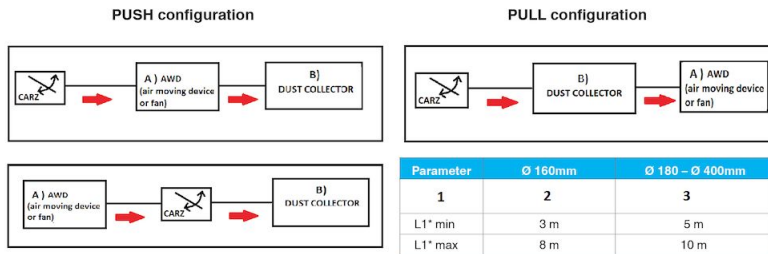
Push/ Pull configuration, imperial

A) AWD (air moving device or fan)
 B) Dust Collector

- 1) Elbows
- 2) Straight duct and max. 2 elbows 90°
- 3) Straight duct and max. 2 elbows 90°

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

Explosion Isolation Flap Valve CARZ



Push/ Pull configuration, metric

- A) AWD (air moving device or fan)
- B) Dust Collector

- 1) Elbows
- 2) Straight duct and max. 2 elbows 90°
- 3) Straight duct and max. 2 elbows 90°

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

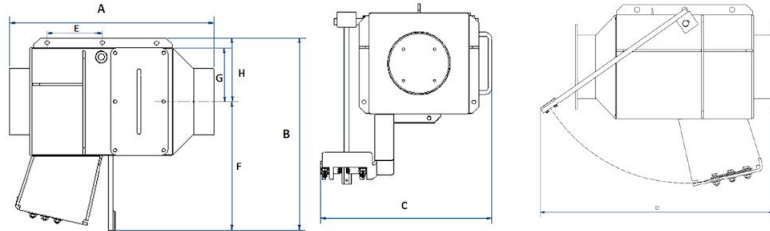
| Flap valve size ØD | Dimensions | | | | | | | | Weight (lbs) | Part number | |
|--------------------|------------|----------|----------|----------|----------|----------|----------|----------|--------------|-------------|----------|
| | A (inch) | B (inch) | C (inch) | D (inch) | E (inch) | F (inch) | G (inch) | H (inch) | | QuickFit | Flanged |
| (6") | 19.5 | 18.5 | 17.1 | 22.9 | 7.7 | 12.2 | 5.1 | 6.1 | 51 | 73001273 | 73001261 |
| (7") | 20.3 | | 17.9 | | 8.1 | 11.9 | 5.5 | 6.5 | 57 | 73001274 | 73001262 |
| (8") | 21.1 | | 18.7 | 8.5 | 11.4 | 5.9 | 6.9 | 64 | 73001275 | 73001263 | |
| (10") | 23.0 | | 20.7 | 23.0 | 9.5 | 10.5 | 6.9 | 7.9 | 79 | 73001277 | 73001265 |
| (12,5") | 26.0 | 19.9 | 24.2 | 26.0 | 10.8 | 9.1 | 8.4 | 9.9 | 104 | 73001281 | 73001269 |
| (14") | 27.0 | 20.9 | 25.2 | 27.0 | 11.5 | 8.5 | 8.9 | 10.4 | 110 | 73001282 | 73001270 |
| (16") | 28.9 | 22.8 | 27.2 | 28.9 | 12.4 | 7.8 | 9.8 | 11.5 | 126 | 73001284 | 73001272 |

Dimension table, Imperial

| Flap valve size ØD | Dimensions [mm] | | | | | | | | Weight [kg] | Part number | | | | | |
|--------------------|-----------------|-----|------|-----|-----|------|-----|-----|-------------|-------------------------|----------|----------|----------|----------|----------|
| | A | B | C | D | E | F | G | H | | Stainless steel version | | | | | |
| | FL | QF | NW** | FL | QF | NW** | FL | QF | | NW** | | | | | |
| 160mm | 495 | 470 | 435 | 196 | 310 | 130 | 155 | 23 | 73001200 | 73001224 | 73001212 | 73000301 | 73000315 | 73000308 | |
| 180mm | 515 | | 455 | 581 | 206 | 301 | 140 | 165 | 26 | 73001201 | 73001225 | 73001213 | 73000302 | 73000316 | 73000309 |
| 200mm | 535 | | 475 | 216 | 291 | 150 | 175 | 29 | 73001202 | 73001216 | 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 |

Dimensions table, metric

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Dimensions