Diaphragm Valves for Reverse Jet Pulse Dust Collection

TMP-DCV / RDCV

FEATURES

- Fast Opening Design for Max Flow
- Industrial Construction and Design
- Available with Integrated or Remote Solenoids
- Pilot Valves Available in Weatherproof Enclosures
- Replacement Diaphragms Available

Operating Principle

The valve is divided into two chambers by a diaphragm. These upper and lower chambers are connected by a small air passage so both chambers see the same pressure. When the exhaust is closed air cannot vent out of the upper chamber and the valve stays closed as shown in Figure 1. When the exhaust on the upper chamber is opened the air pressure decreases on the top of the diaphragm allowing the air pressure on the bottom to force open the valve by pushing the diaphragm up as shown in Figure 2. When the valve opens an abrupt air blast comes through the valve outlet and is directed by the dust collector to the dirty filter. The air pulse then blows out through the filter from the inside blowing the particulate accumulation off of the filter to clean it. After the air pulse the pressure in the upper and lower chamber will equalize and the spring pushes the valve back to a closed position. The valve exhaust port is controlled by either an integral or remote solenoid.

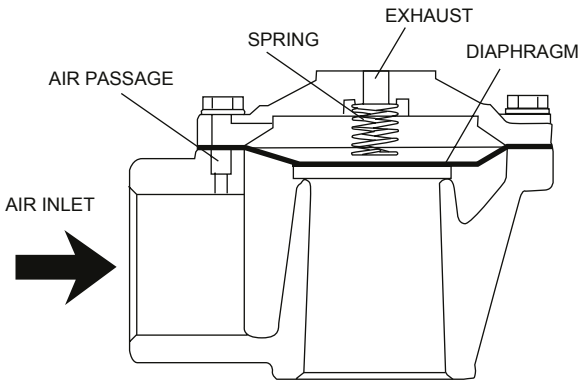

Figure 1. Closed Position

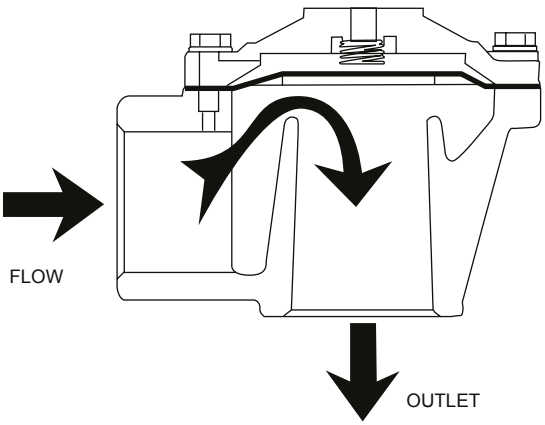

Figure 2. Open Position

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TMP-DCV62T1D

TMP-DCV20C1D

TMP-RDCV62T

TMP-RDCV20C

The Series TMP-DCV/RDCV Dust Collection Valves are ideal for use with the Series TMP-DCT1000 and Series TMP-DCT500 duct collection timer boards for controlling the air pulse in jet pulse type dust col-lectors to clean the filters. Both the Series TMP-DCV and TMP-RDCV have the option for either coupling or NPT connections. The coupling connection allows for a quick and simple installation. Only the stub pipe and blowtube need to be cleaned and deburred before the valve is fit into position. The “T” Series TMP-DCV has female threaded connections. Both the “C” and “T” versions have a 90° angle be-tween the inlet and outlet the most suitable configuration for pulse valve applications. The design offers not only ease of installation, but also minimal airflow restriction for an exceptional cleaning pulse. The valves are offered in both integrated and remote coil configurations.

Specifications

Service:	Compatible gases, filtered and oil free.
Wetted Materials:	Body: aluminum; Trim: 304 SS; Diaphragm and seals: NBR; Diaphragm disc: polyamide. Other Materials: Cover: aluminum; Body bolts and spring: 304 SS.
Pressure Limits:	Minimum of 4.4 psi (0.3 bar), maximum of 124.7 psi (8.6 bar).
Temperature Limits:	Ambient: -4 to 140°F (-20 to 60°C) for RDCV models, -4 to 122°F (-20 to 50°C) for DCV models; Operating: -4 to 185°F (-20 to 85°C).
Power Requirements:	110 VAC, 220 VAC, or 24 VDC for DCV models.
Power Consumption:	12 W, inrush: 17 VA; holding: 14.5 VA for DCV models.
Electrical Connection:	DIN connection for DCV models.
Enclosure Rating:	NEMA 4X (IP65) for DCV models.
Process Connection:	See model chart.
Mounting Orientation:	Any position.

Series DCV/RDCV Model Guide

Construction	DCV RDCV					Integrated Coil Remote Coil
Size		20 25 35 45 50 62 76				3/4″ 1″ 1-1/2″ 1-1/2″ (2 Diaphragms) 2″ 2-1/2″ 3″
Connection			T C			NPT Coupling (up to 1-1/2″ only)
Voltage				1 2 3		110 VAC (for integrated coil only) 220 VAC (for integrated coil only) 24 VDC (for integrated coil only)
Electrical Connections					D	DIN (for integrated coil only)

Model Number	Size	Solenoid	Connection	Number of Diaphragms	Cv Factor (gal/min)
RDCV20T	**3/4″**	Remote	NPT	1	14
RDCV20C		Remote	Coupling		
DCV20T1D		Integral*	NPT		
DCV20C1D		Integral*	Coupling		
RDCV25T	**1″**	Remote	NPT	1	23
RDCV25C		Remote	Coupling		
DCV25T1D		Integral*	NPT		
DCV25C1D		Integral*	Coupling		
RDCV35T	**1-1/2″**	Remote	NPT	1	42
RDCV35C		Remote	Coupling		
DCV35T1D		Integral*	NPT		
DCV35C1D		Integral*	Coupling		
RDCV45T	**1-1/2″**	Remote	NPT	2	51
RDCV45C		Remote	Coupling		
DCV45T1D		Integral*	NPT		
DCV45C1D		Integral*	Coupling		
RDCV50T	**2″**	Remote	NPT	2	106
DCV50T1D		Integral*	NPT		
RDCV62T	**2-1/2″**	Remote	NPT	2	136
DCV62T1D		Integral*	NPT		
RDCV76T	**3″**	Remote	NPT	2	167
DCV76T1D		Integral*	NPT		

* 110 VAC with DIN Connector.

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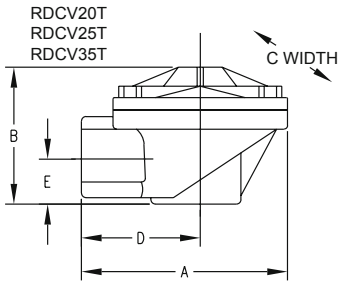

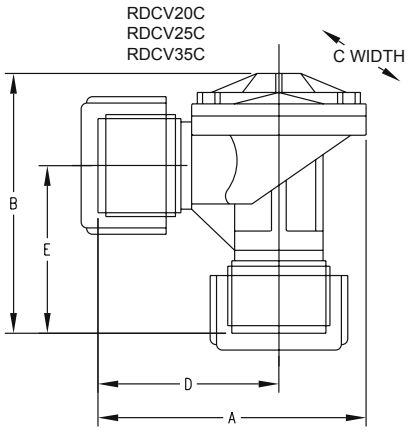

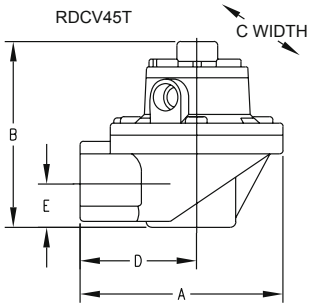

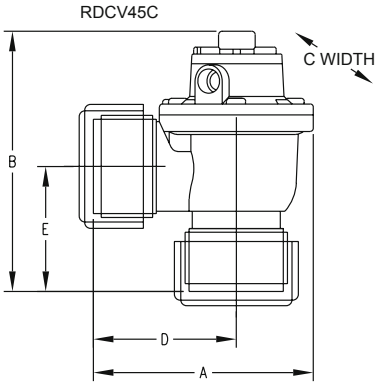

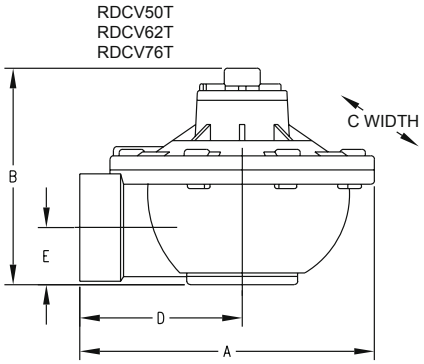

DIMENSIONAL CHART

Connection	Model Number	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Weight lb (kg)
NPT	RDCV20T	3-15/16″ (100)	2-31/32″ (75)	3-7/16″ (87)	2-3/16″ (56)	25/32″ (20)	1.12 (.51)
	RDCV25T	4-1/8″ (105)	3″ (76)	3-1/4″ (83)	2-1/2″ (64)	7/8″ (22)	1.15 (.52)
	RDCV35T	5-1/8″ (130)	4-29/32″ (125)	4-3/8″ (111)	4-1/2″ (114)	1-9/32″ (33)	2.0 (.91)
	RDCV45T	5-25/32″ (147)	5-5/32″ (131)	4-3/8″ (111)	3-5/8″ (91)	3″ (76)	2.2 (1.0)
	RDCV50T	8-1/16″ (205)	5-7/8″ (149)	7-1/4″ (184)	4-15/32″ (113)	1-9/16″ (40)	4.2 (1.9)
	RDCV62T	8-9/32″ (210)	6-11/16″ (170)	7-1/4″ (184)	4-21/32″ (118)	1-29/32″ (48)	5.5 (2.5)
	RDCV76T	8-19/32″ (218)	7-27/32″ (199)	7-7/8″ (200)	4-21/32″ (118)	2-1/2″ (63)	6.6 (3.0)
Coupling	RDCV20C	4-13/32″ (112)	4″ (102)	3-7/16″ (87)	2-5/8″ (67)	1-25/32″ (45)	1.37 (.62)
	RDCV25C	4-5/8″ (117)	5″ (127)	3-1/4″ (83)	3″ (76)	2-3/4″ (70)	2.1 (.96)
	RDCV35C	5-13/16″ (147)	5-15/32″ (139)	4-3/8″ (111)	3-5/8″ (91)	3″ (76)	2.4 (1.1)
	RDCV45C	5-25/32″ (147)	6-25/32″ (172)	4-3/8″ (111)	3-5/8″ (91)	3″ (76)	3.2 (1.45)

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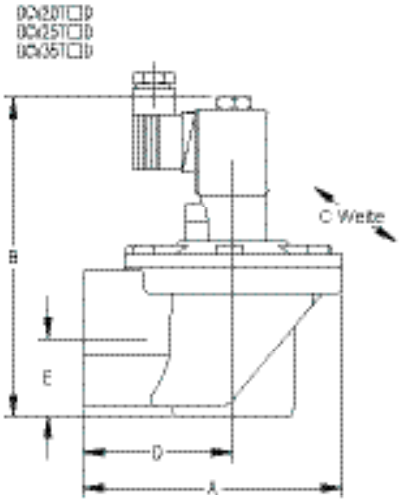

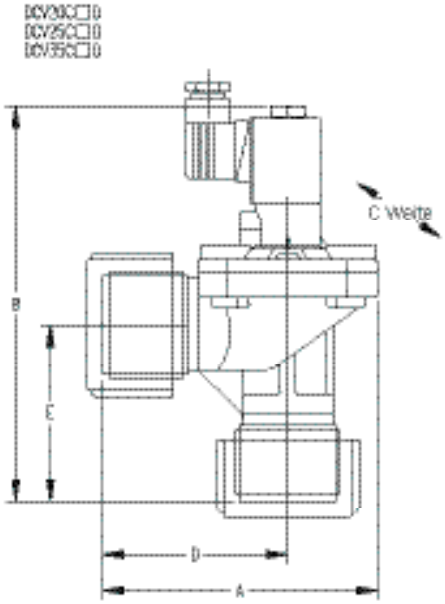

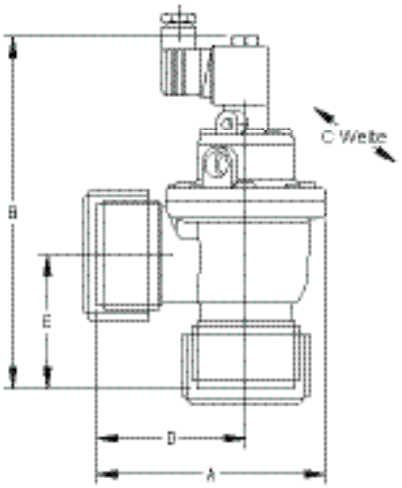

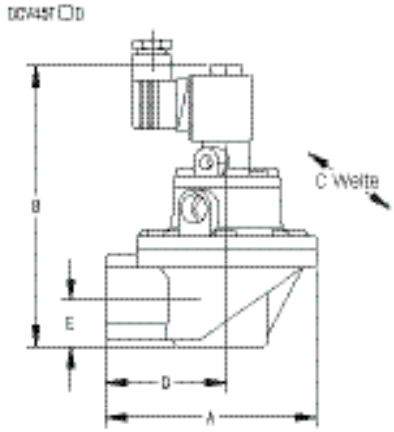

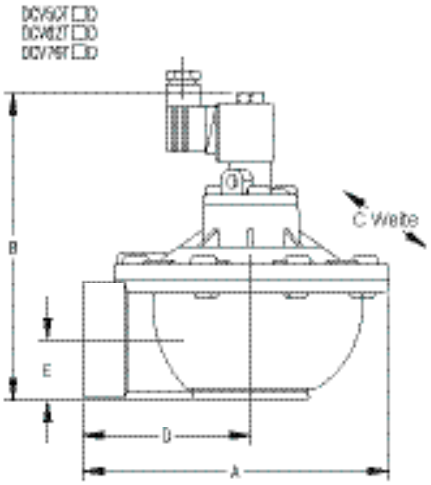

Abmessungen

Anschluss	Modellnummer	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Gewicht lb (kg)
NPT	DCV20T_D DCV25T_D DCV35T_D DCV45T_D DCV50T_D DCV62T_D DCV76T_D	3-15/16" (100) 4-1/8" (105) 5-1/8" (130) 5-25/32" (147) 8-1/16" (205) 8-9/32" (210) 8-19/32" (218)	4-13/16" (122) 4-21/32" (126) 6-1/16 (154) 7-7/32" (183) 7-29/32" (201) 8-3/4" (222) 9-7/8" (251)	3-7/16" (87) 3-1/4" (83) 4-3/8" (111) 4-3/8" (111) 7-1/4" (184) 7-1/4" (184) 7-7/8" (200)	2-3/16" (56) 2-1/2" (64) 4-1/2" (114) 3-5/8" (91) 4-15/32" (113) 4-21/32" (118) 4-21/32" (118)	25/32" (20) 7/8" (22) 1-9/32" (33) 3" (76) 1-9/16" (40) 1-29/32" (48) 2-1/2" (63)	1.31 (.59) 1.33 (.60) 2.2 (.99) 2.4 (1.1) 4.4 (2.0) 5.7 (2.6) 6.8 (3.1)
Verschraubung	DCV20C_D DCV25C_D DCV35C_D DCV45C_D	4-13/32" (112) 4-5/8" (117) 5-13/16" (147) 5-25/32" (147)	5-27/32" (148) 6-21/32" (177) 7-21/32" (194) 8-27/32" (224)	3-7/16" (87) 3-1/4" (83) 4-3/8" (111) 4-3/8" (111)	2-5/8" (67) 3" (76) 3-5/8" (91) 3-5/8" (91)	1-25/32" (45) 2-3/4" (70) 3" (76) 3" (76)	1.55 (.70) 2.3 (1.0) 2.6 (1.2) 3.4 (1.5)

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