



## Series DCS/RDCS Springless Diaphragm Valves

### Specifications - Installation and Operating Instructions



DCS35T1D



DCS35C1D



RDCS20C



RDCS35T



RDCS35C

The Series DCS/RDCS Springless Dust Collection Valves are ideal for use with the Series DCT1000 and Series DCT500 duct collection timer boards. A springless design offers not only durability, but also reliability for an exceptional cleaning pulse. Both the Series DCS and RDCS 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 DCS has female threaded connections and the "C" Series DCS has a coupling connection. Both the "T" and "C" versions have a 90° angle between the inlet and outlet: the most suitable configuration for pulse valve applications. The valves are offered in both integrated and remote coil configurations.

#### Models

Model	Size	Solenoid	Connection	Number of Diaphragms	Cv Factor (gal/min)
RDCS20T	3/4"	Remote	NPT	1	14
RDCS20C		Remote	Coupling		
DCS20T1D		Integral*	NPT		
DCS20C1D		Integral*	Coupling		
RDCS25T	1"	Remote	NPT	1	23
RDCS25C		Remote	Coupling		
DCSS25T1D		Integral*	NPT		
DCSS25C1D		Integral*	Coupling		
RDCS35T	1-1/2"	Remote	NPT	1	42
RDCS35C		Remote	Coupling		
DCS35T1D		Integral*	NPT		
DCS35C1D		Integral*	Coupling		

\*110 VAC with DIN Connector

#### Series DCS/RDCS Model Guide

Construction	DCS	RDCS			Integrated coil	Remote coil
Size			20		3/4"	
			25		1"	
			35		1-1/2"	
Connection			T		NPT	
			C		Coupling	
Voltage				1D	110 VAC DIN (for integrated coil only)	
				2D	220 VAC DIN (for integrated coil only)	
				3D	24 VDC DIN (for integrated coil only)	

#### SPECIFICATIONS

**Service:** Compatible gases, filtered and oil free.

#### Wetted Materials:

Body: Aluminum;

Diaphragm disc: Thermoplastic polyurethane;

Solenoid seals: NBR.

#### Other Materials:

Cover: Aluminum;

Body bolts: Zinc plated SS;

Solenoid: Nylon.

**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);

Operating: -4 to 185°F (-20 to 85°C).

**Power Requirements:** 110 VAC, 220 VAC, or 24 VDC for DCS models.

**Power Consumption:** 12 W, inrush: 17 VA; Holding: 14.5 VA for DCS models.

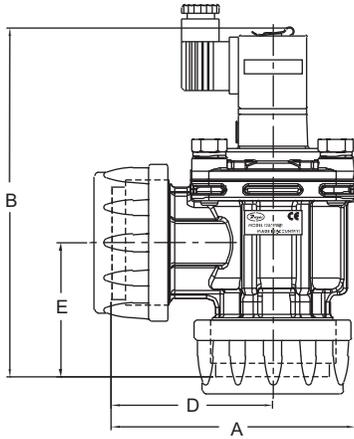
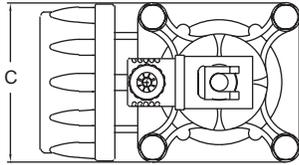
**Electrical Connection:** DIN connection for DCS models.

**Enclosure Rating:** NEMA 4X (IP65) for DCS models.

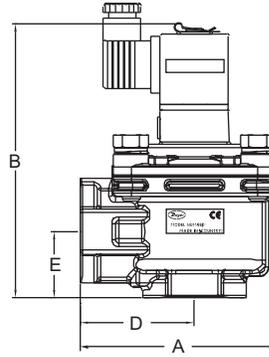
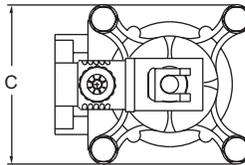
**Process Connection:** See model chart.

**Mounting Orientation:** Any position.

**DCSxxCxD**



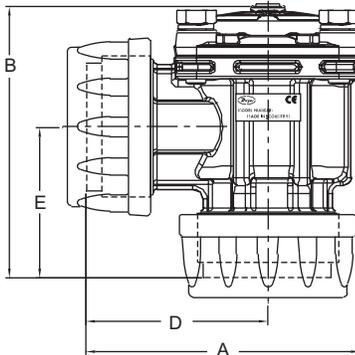
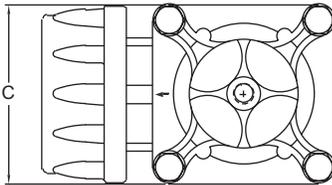
**DCSxxTxD**



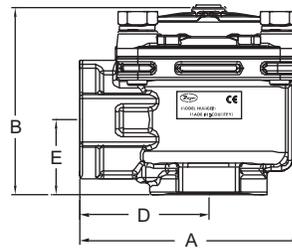
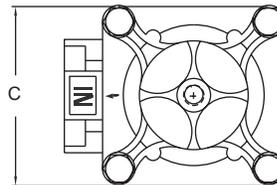
**DCS Dimensional Chart**

Connection	Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
NPT	DCS20TxD	3-1/8" (79.38)	4-57/64" (124.22)	2-45/64" (68.66)	1-37/64" (40.08)	1-15/64" (31.35)
	DCS25TxD	3-19/64" (83.74)	5-9/16" (141.29)	2-53/64" (71.83)	1-55/64" (47.23)	1-31/64" (37.70)
	DCS35TxD	4-11/32" (110.33)	6-3/64" (153.59)	3-1/2" (88.9)	2-17/32" (64.29)	1-15/32" (37.31)
Coupling	DCS20CxD	4-9/64" (105.17)	5-9/16" (141.29)	2-45/64" (68.66)	2-39/64" (66.28)	1-51/64" (45.64)
	DCS25CxD	4-7/16" (112.71)	7-1/32" (178.59)	2-53/64" (71.83)	3" (76.20)	2-49/64" (70.25)
	DCS35CxD	5-23/64" (136.13)	7-45/64" (195.68)	3-1/2" (88.9)	3-35/64" (90.09)	2-61/64" (75.01)

**RDCSxxC**



**RDCSxxT**



**RDCS Dimensional Chart**

Connection	Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
NPT	RDCS20T	3-1/8" (79.38)	2-47/64" (69.45)	2-45/64" (68.66)	1-37/64" (40.08)	1-15/64" (31.35)
	RDCS25T	3-19/64" (83.74)	3-7/32" (81.76)	2-53/64" (71.83)	1-55/64" (47.23)	1-31/64" (37.70)
	RDCS35T	4-11/32" (110.33)	3-43/64" (93.27)	3-1/2" (88.9)	2-17/32" (64.29)	1-15/32" (37.31)
Coupling	RDCS20C	4-9/64" (105.17)	3-25/64" (86.1)	2-45/64" (68.66)	2-39/64" (66.28)	1-51/64" (45.64)
	RDCS25C	4-7/16" (112.71)	4-43/64" (118.67)	2-53/64" (71.83)	3" (76.20)	2-49/64" (70.25)
	RDCS35C	5-23/64" (136.13)	5-21/64" (135.33)	3-1/2" (88.9)	3-35/64" (90.09)	2-61/64" (75.01)

## OPERATION

Series DCS includes an integral solenoid and Series RDCS needs to be used with a remote pilot solenoid valve. Both are normally closed valves. When the remote pilot solenoid valve or integral solenoid opens, pressure is released (exhausted) from the top of the diaphragm in the pulse valve. This allows the line pressure on the bottom of the diaphragm to push the diaphragm up and open the main orifice of the pulse valve. When the solenoid closes, the pressure on the bottom and the top of the diaphragm equalizes closing the main orifice of the pulse valve.

## INSTALLATION

### ⚠ WARNING

Before installation make sure all air pressure has been released, electric power has been turned off, and air pressure source has been closed. Turn power on and increase pressure only after installation is complete.

## LOCATION

Select a location that will not exceed the ambient temperature specifications of the valve. The system must be located in an enclosure that meets relevant safety standards and electrical codes of the environment.

## MOUNTING

The DCS/RDCS can be mounted in any position. For optimum life and performance, it is recommended that the unit be mounted vertically and upright to reduce the chance of foreign matter accumulating in the valve. For DCS in weatherproof applications it is recommended that the cable gland be positioned face down to avoid possible rainfall or water from entry.

## PROCESS CONNECTIONS

For DCS/RDCS with coupling connections:

1. Connect piping so that pneumatic input is the bottom connection and the outlet is the side connection at 90°.
2. Stub pipe (blow tube) must be free of burrs, rust, oil, and other debris.
3. Disassemble compression fittings and place the retaining nut, retainer, and gasket onto the piping. Make sure that the beveled edge of the gasket faces the valve body.
4. Connect fittings to the valve body. Make sure that the pipe is inline with the valve ports. Nut and seals are for connection only and should not be used for support purposes.

### Notes:

- Make sure pipes are anchored securely to avoid separation from the valve.
- Do not use the valve for leverage when connecting piping.
- Do not over-tighten retaining nut or valve damage may result. Tighten retaining nuts just sufficiently for sealing to prevent leakage. This is a gasket seal and does not require excessive turning of the nut.

For DCS/RDCS with NPT connections:

1. Connect piping so that pneumatic input is the bottom connection and the outlet is the side connection at 90°.
2. Stub pipe (blow tube) must be free of burrs, rust, oil, and other debris.
3. Thread piping into the valve body. Make sure that the pipe is inline with the valve ports. If using tape or pipe compound, apply to the male piping threads and use sparingly as it may come loose and affect valve operation.

Do not apply tape or pipe compound directly to the female valve body threads.

## Pressure Connection from Remote Pilot Solenoid Valve

(For RDCS units)

The RSV, remote pilot solenoid valve, should be mounted as close as possible to the RDCS pulse valve. The maximum distance is 9.8 ft (3 m). Tubing from the remote solenoid valve is connected to the exhaust port on the top of the RDCS pulse valve. If using tape or pipe compound, apply to the male piping threads and use sparingly as it may come loose and affect valve operation. Do not apply tape or pipe compound directly to the female valve body threads.

## Wiring Connections

(For DCS units)

Wire in accordance with the National Electrical Code and local regulations. To aid in wiring, the solenoid on the DCS may be rotated 360°. It is recommended to use 18 AWG copper wire rated at 194°F (90°C) or greater.

Wiring the DCS with DIN connector. See Figure 1.

1. Remove center screw and pull wiring assembly from the body.
2. Remove gasket and place small screwdriver in slot to pry out the terminal block from the cover.
3. Thread wire through the gland nut, gland gasket, washer and connector cover.
4. Connect wires to proper terminals on the terminal block.
5. Snap terminal block back into the cover. The connector cover may be rotated in 90° increments to position the cable entry as needed for the application. Reinstall the center screw and screw back into the solenoid body.

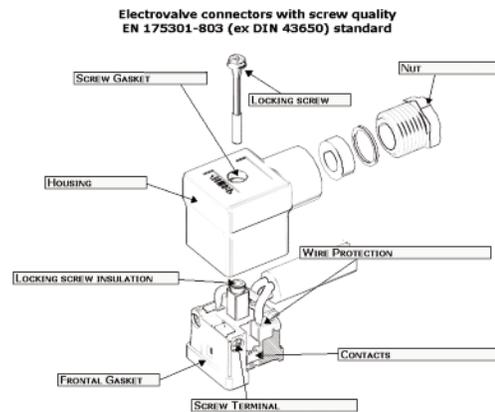


Figure 1

## MAINTENANCE

### ⚠ WARNING

To prevent the possibility of death, serious injury or property damage, turn off electrical power, depressurize system and unit, and vent fluid to a safe area before servicing. The DCS/RDCS should be cleaned periodically. The amount of time between cleanings depends on the application. Preventive maintenance includes keeping media clean of material and oil free, and periodic testing to ensure proper operation and to look for wear or damage. Replacement diaphragm assemblies are available from the factory.

