

PRICE[®]

RDV / RDVQ 5000 AIR VOLUME CONTROL VALVE

SERVICE & INSTALLATION MANUAL

Date: 04/11
Reference #: F-37

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General Description

The RDV/RDVQ 5000 is supplied with the duct, damper, and sensor constructed of 22 galvanized steel. The RDV/RDVQ 5000 assembly is designed to accept direct digital controls (DDC) for VAV pressure independent operation.

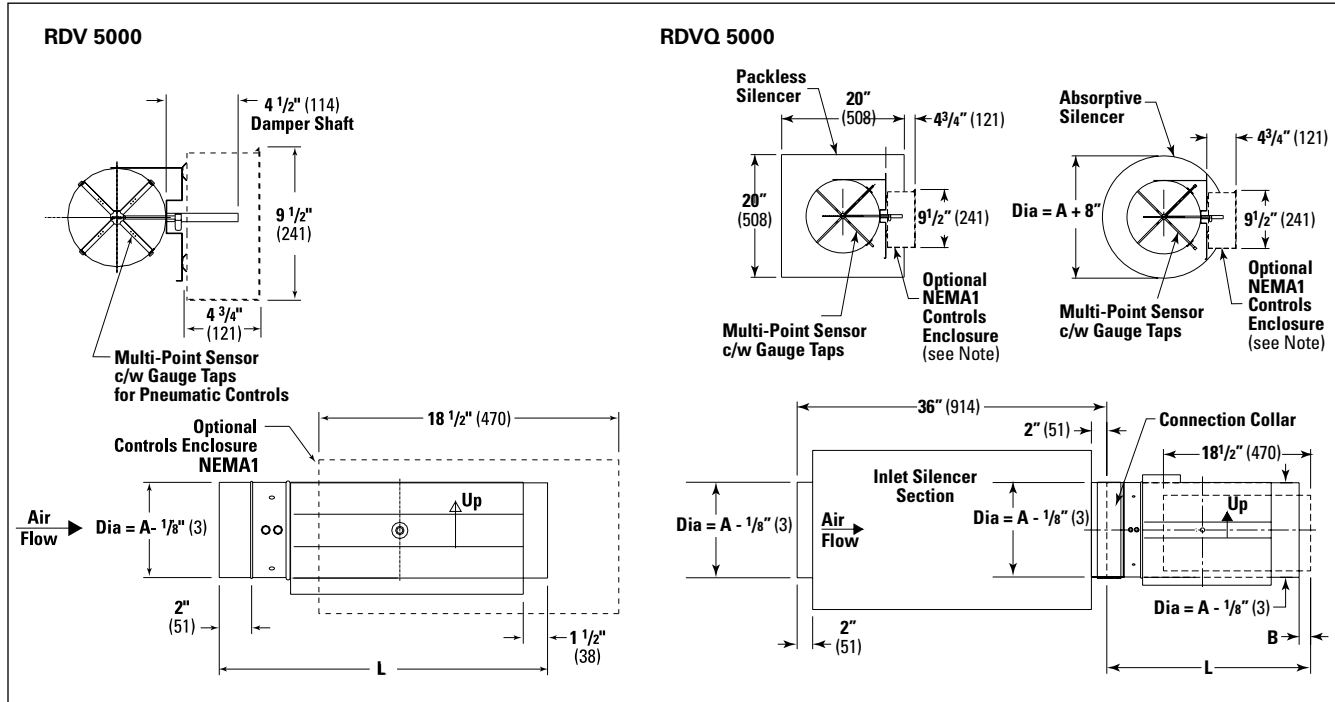
The terminal unit controls are supplied by the controls contractor and either factory or field mounted and wired. For information concerning controls, components, sequence of operation, etc., please refer to the documentation provided by the controls contractor.

Receiving Inspection

After unpacking the assembly, check it for shipping damage. If any shipping damage is found, report it immediately to the delivering carrier. During unpacking and installation **do not** handle by the inlet velocity sensor, damper shaft, or tubing. Damage may result.

Wiring

If controls have been factory mounted, a wiring diagram will be included with the unit indicating the factory mounted components. For field wiring of room sensors and other accessories, refer to the controls contractor's documentation. If the controls have been field mounted, refer to the controls contractor's documentation for all wiring information.



Installing the RDV/RDVQ 5000 Terminal Unit

The basic RDV/RDVQ 5000 is light enough that it can be supported by the ductwork in which it is installed. Use the support method prescribed for the round duct in the job specifications.

Important: For optimum performance there should be a minimum of three duct diameters of straight inlet duct, same size as the inlet, between the inlet and any transition, take off or fitting.

The assembly should be mounted right side up. It should be level within ± 10 degrees of horizontal, both parallel to the air flow and at right angles to the air flow. The side of the assembly is labelled with an arrow indicating UP. Do not mount the control side of the assembly tight to a wall, pipe or other obstruction. Allow sufficient room for access to the controls.

If the RDV/RDVQ 5000 is mechanically fastened to the duct work an approved duct sealer should be used to seal all connections.

Damper rotation is always clockwise to the open position. An identification mark on the end of the shaft indicates the damper position. Capped "T"s are provided in the sensing lines from the amplifying sensor for pneumatic controls. These allow field connection of a differential pressure gauge for accurate air flow measurement.

The factory supplied sensing lines are color coded. Red indicates the total pressure or "HI" line which should be located on the upstream side. Green indicates the static pressure or "LO" line which should be located on the downstream side.

An optional protective enclosure may be provided to house the terminal unit control components. The enclosure cover is removable with two sheet metal screws.

The air volume ranges listed are recommended for optimum performance. A minimum value of zero is also acceptable if no heating coils are attached.

Selection of air flow limits below the listed values is not recommended. Stability and accuracy may not be acceptable at lower than recommended air flow limits. The actual performance will vary depending on the terminal unit controls supplied.

Air Volume Ranges

RDV/RDVQ w/Absorptive Silencer

Unit Size	CFM	L/S
	Min. - Max	Min. - Max
6	80 - 450	38 - 212
7	110 - 650	52 - 307
8	160 - 800	76 - 378
9	200 - 1050	94 - 496
10	270 - 1350	127 - 637
12	350 - 2100	165 - 991
14	500 - 3000	236 - 1416
16	650 - 4000	307 - 1888

RDVQ w/Packless Silencer

Unit Size	CFM	L/S
	Min. - Max	Min. - Max
6	80 - 380	38 - 179
7	110 - 600	52 - 283
8	160 - 800	76 - 378
9	200 - 1000	94 - 472
10	270 - 1350	127 - 637
12	350 - 2000	165 - 944
14	500 - 2500	236 - 1180
16	650 - 3500	307 - 1649

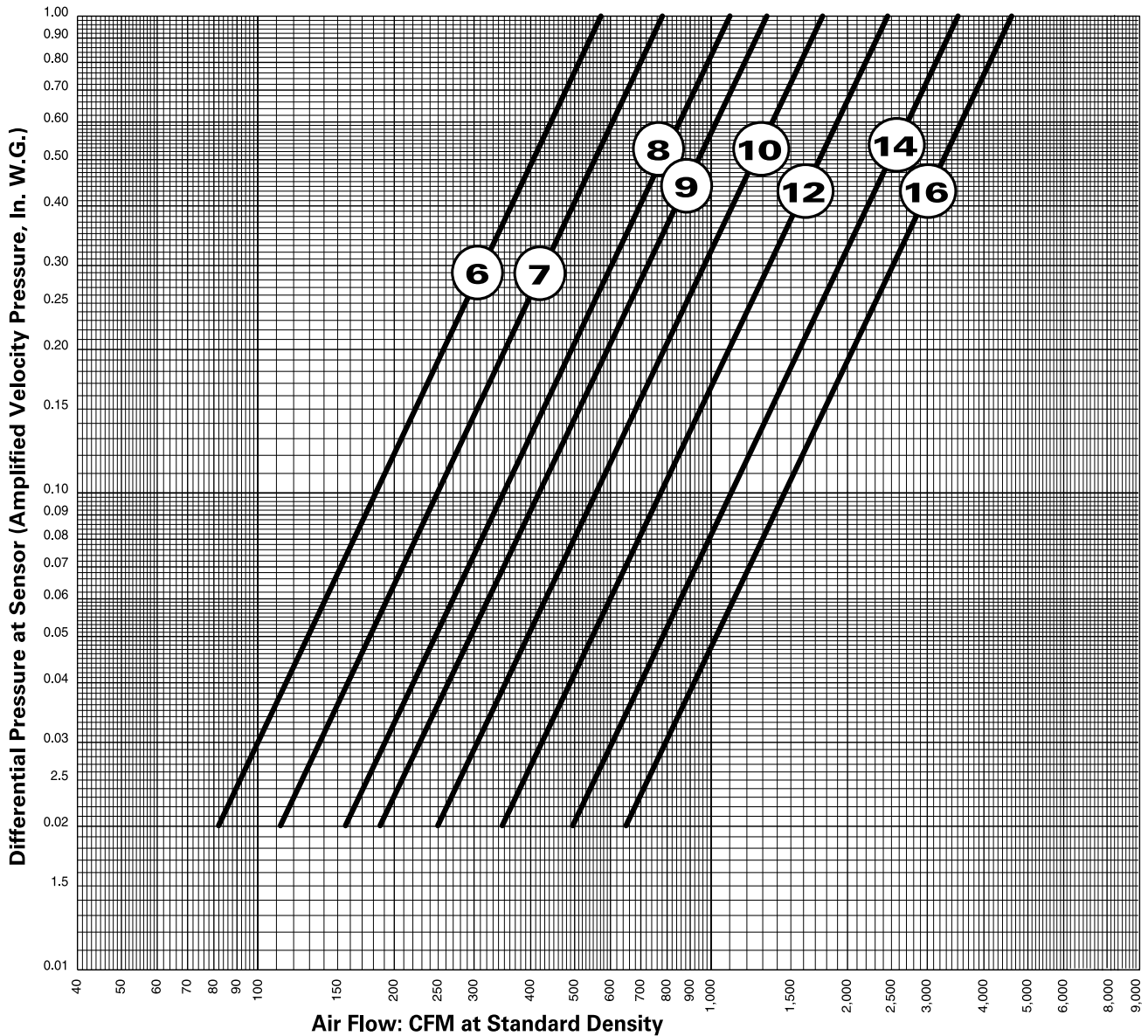
Notes:

Factory calibrated controls must be selected within the above flow range limits. A minimum value of zero is also available. When an auxiliary flow setting is specified, the value must be greater than the minimum setting and within the range limits.

On controls mounted by Price but supplied by others, the air volume ranges are guidelines only.

Selection of air flow limits below the listed values is not recommended. Stability and accuracy may not be acceptable at lower than recommended air flow limits. The actual performance will vary depending on the terminal unit controls supplied.

Calibration Curves - RDV/RDVQ w/Absorptive Silencer



Calibration Equation

$$VP = \left(\frac{Q}{K}\right)^2$$

- VP** - differential pressure at sensor, inches w.g.
- Q** - air flow rate, cfm at standard density.
- K** - calibration constant

Unit Size	K
6	570
7	790
8	1100
9	1325
10	1770
12	2450
14	3500
16	4600

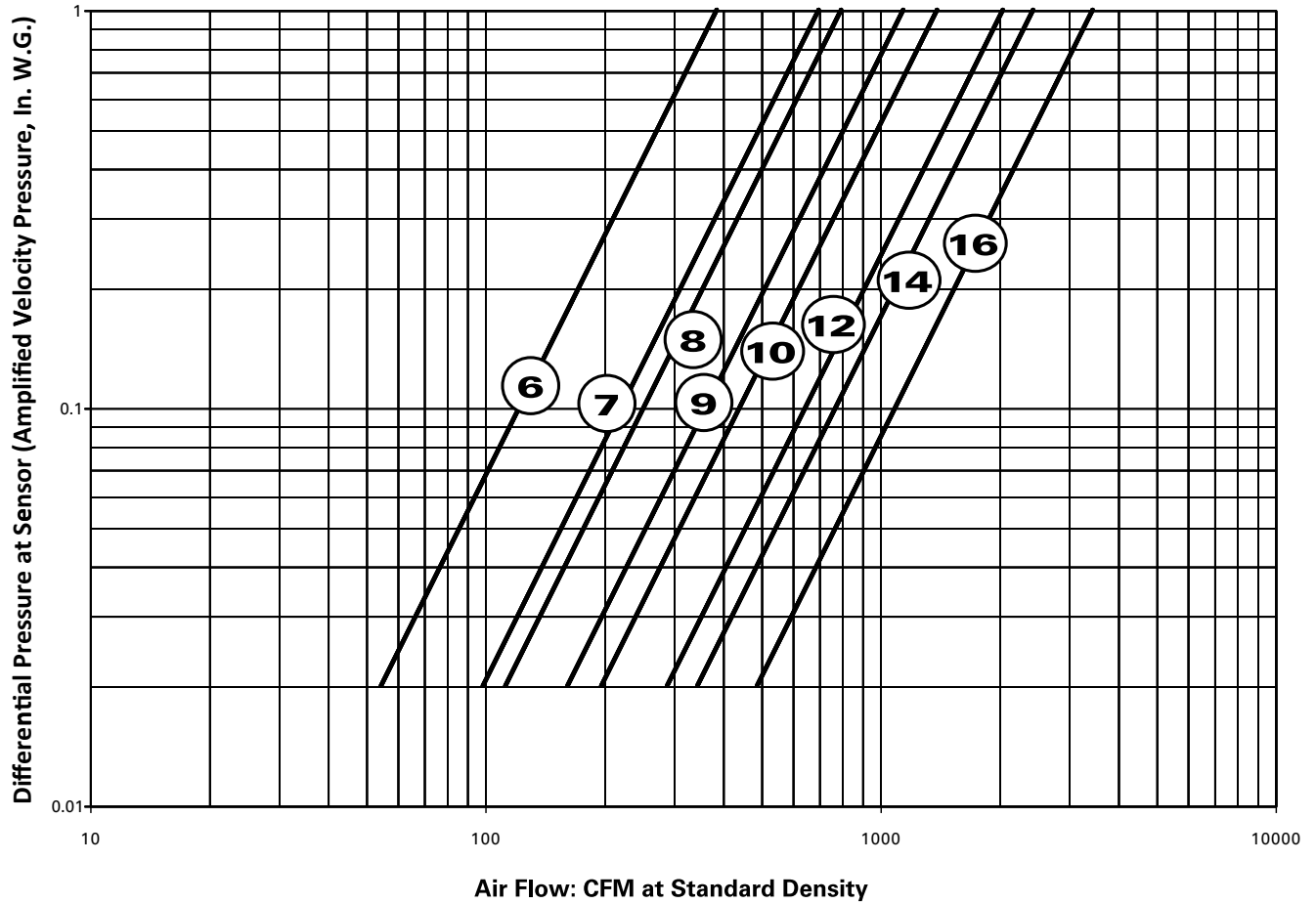
NOTES

1. Gauge taps are normally supplied with the pneumatic controls to allow field measurement of the differential pressure at the sensor with a manometer, magnahelic or other measuring device.

If the terminal velocity controls utilize a flow-through transducer, a proper velocity pressure reading will NOT be read at the gauge taps and the calibration curves CANNOT be used for field measurement. The flow-through transducer operates on the principle of mass flow rather than pressure differential.

Controls utilizing a dead-ended pressure transducer will allow field measurement with the gauge taps and calibration curves provided.
2. Setting flow limits for a differential pressure of less than 0.02 inches is NOT recommended. Stability and accuracy of flow limits may not be acceptable due to low velocity pressure signal. Performance will vary depending on the terminal unit controls provided.
3. For field calibration of air flow limits refer to the control contractors documentation.

Calibration Curves - RDV/RDVQ w/Packless Silencer



Calibration Equation

$$VP = \left(\frac{Q}{K}\right)^2$$

- VP** - differential pressure at sensor, inches w.g.
Q - air flow rate, cfm at standard density.
K - calibration constant

Unit Size	K
6	382
7	690
8	790
9	1130
10	1380
12	2025
14	2415
16	3425

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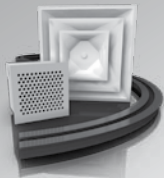
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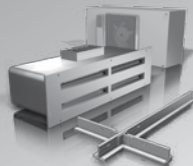
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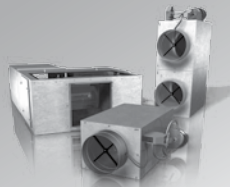
Grilles & Diffusers



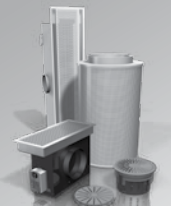
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