

## GENERAL PRODUCT OVERVIEW

### Retrofit Terminal Units

- Convert Constant Air Volume Systems to Variable Air Volume
  - Convert Constant Volume Dual Duct Systems to Variable Air Volume
  - Convert Multizone Systems to Variable Air Volume
  - Convert Mechanical Constant Volume Regulators to Low Pressure Pneumatic, Analog Electronic or Digital Controls.
- Nailor manufactures a range of standard and custom design retrofit terminal units for all applications.

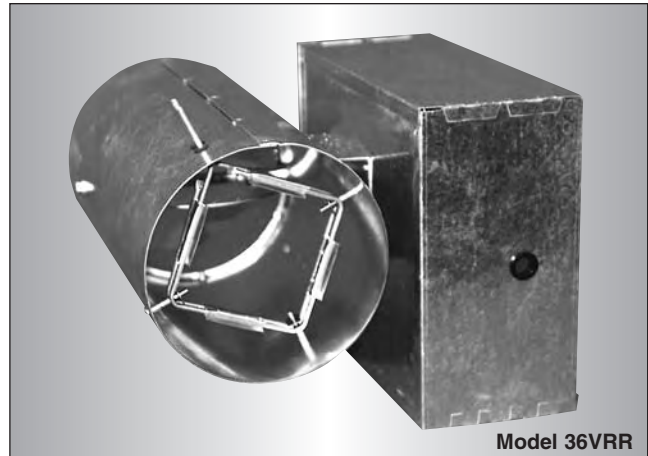
### Round Duct External Retrofit Terminal Unit

Convert existing constant volume systems or old "system powered" mechanical regulator terminals to energy efficient variable volume operation.

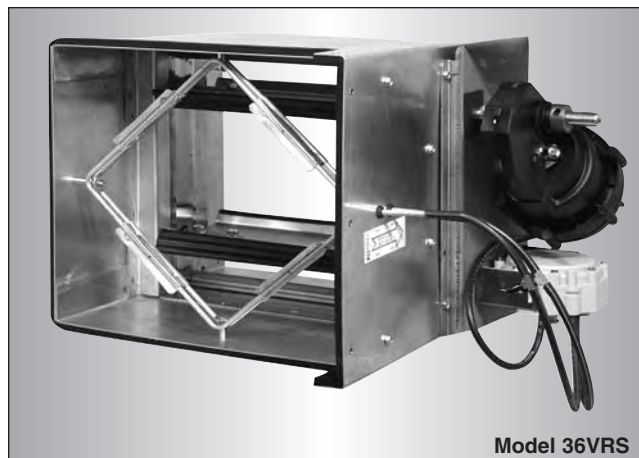
- Available in 10 sizes to suit and install simply in round ductwork. 0 – 4050 cfm (0 – 1912 l/s).
- Various configurations custom fabricated to suit individual applications.
- Pressure dependent or independent airflow control.
- 'Diamond Flow' multi-point averaging flow sensor on pressure independent models.
- Pneumatic, electric, analog electronic or digital control.

**Model 36VRR**

**See page E5**



Model 36VRR



Model 36VRS

### Rectangular Slide-in Retrofit Terminal Unit

Convert existing constant volume systems to energy efficient variable volume operation.

- Available in 15 valve sizes to handle a large range of air volumes. 0 – 15000 cfm (0 – 7080 l/s).
- Custom fabricated to suit any duct size from 5" x 5" (127 x 127) up to 52" x 26" (1321 x 660).
- 'Diamond Flow' multi-point averaging sensor.
- Pressure independent airflow control.
- Pneumatic, analog electronic or digital control.

**Model 36VRS**

**See Page E10**

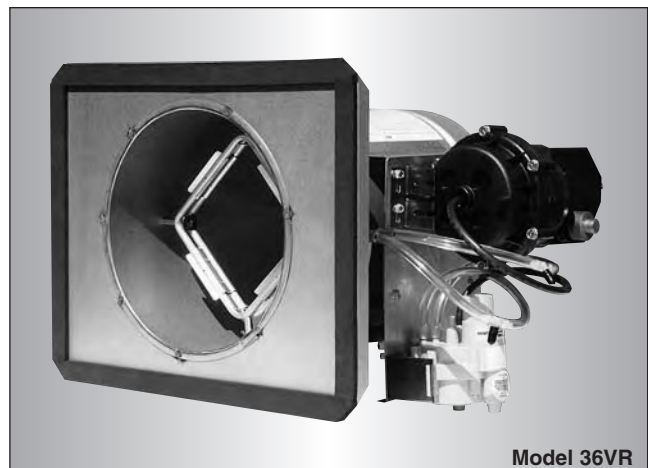
### Internal Retrofit Terminal Units

Designed to replace the mechanical regulators in old "system powered" terminal units in order to substantially lower the operational static pressure requirement. The air valves include a damper, flow sensor and actuator and make use of state-of-the-art controls in order to reduce operating cost.

- Custom built on a specific project basis.
- Variable or constant volume pressure independent airflow control.
- 'Diamond Flow' multi-point averaging flow sensor.
- Models available to retrofit most 'brand name' mechanical regulator design terminal units.
- Pneumatic, analog electronic or digital control.

**Model 36VR**

**Contact your Nailor Sales Rep.**



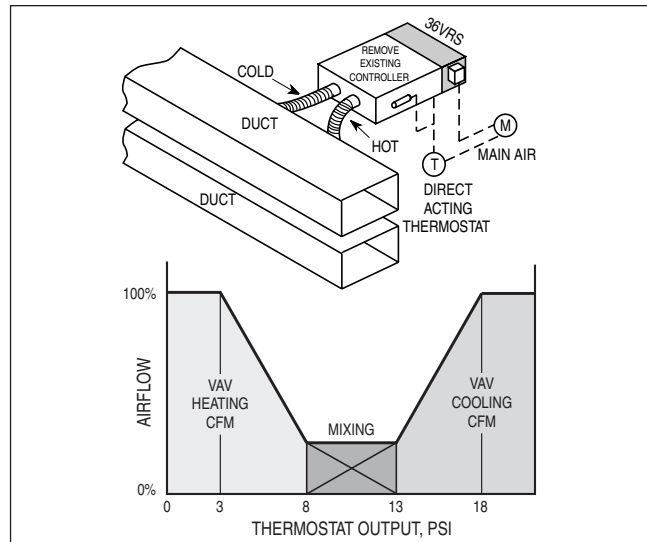
Model 36VR

## Some Typical Applications for the Model Series 36VR Retrofit VAV Terminals Dual Duct System

Hot and cold air from the central station is distributed through the existing supply ducts and terminals. The **Series 36VR Retrofit Terminals** will convert the constant volume system to variable air volume pressure independent operation.

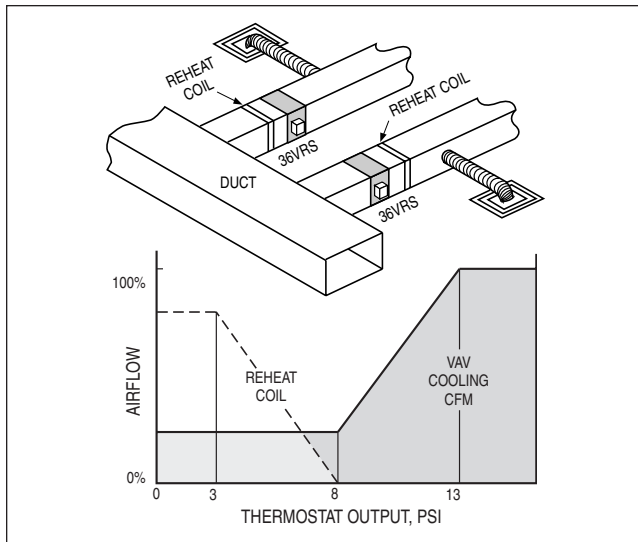
Remove the mechanical constant volume regulator from the existing terminal, while a **Model 36VRS** is installed in the discharge box or duct. A direct acting thermostat controls both the **36VRS** unit and the modulating tandem damper in the existing box. On a rise in room temperature, the **36VRS** reduces the hot airflow. At the minimum setting, the damper in the existing terminal begins to modulate, and mixing occurs. A further temperature rise increases the cold airflow to the maximum.

The fan capacity may be reduced down since the total air volume is reduced.



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RETROFIT TERMINAL UNITS



## Constant Volume Reheat System

Cold air from the central station is distributed through the existing main trunk and branch ducts. The **Model 36VRS Retrofit Terminals** will convert the constant volume system to pressure independent variable air volume operation.

Each **36VRS** terminal is signalled by a direct acting thermostat. The pressure independent minimum airflow is set at a thermostat output pressure of 8 psi or less, while the maximum is set at 13 psi or greater.

The existing reheat coil in each zone is actuated on a fall in room temperature, as the thermostat output decreases from 8 to 3 psi.

The fan capacity may be reduced since the total air volume is reduced.

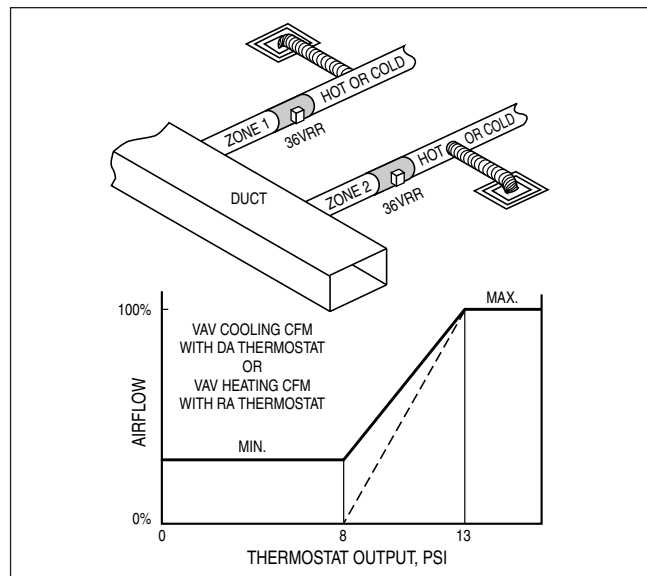
## Multizone System

Hot or cold air from the central station multizone air handler is distributed through the existing zone system. The **Series 36VR Retrofit Terminals** will convert the multizone system to variable air volume operation.

The zone dampers in the central station air handler are made with two-position actuators; each zone is fully open, either heating or cooling. There is no mixing. (Controls may be selected for an outdoor thermostat, a manual selector or changeover signal.)

A dual function thermostat in each zone is direct acting for cooling, reverse acting for heating. In response to the room temperature, the thermostat resets the velocity controller for pressure independent control of the **Series 36VR**.

The fan capacity may be reduced since the total air volume is reduced.



## ROUND EXTERNAL DUCT RETROFIT TERMINAL UNIT

### MODEL 36VRR

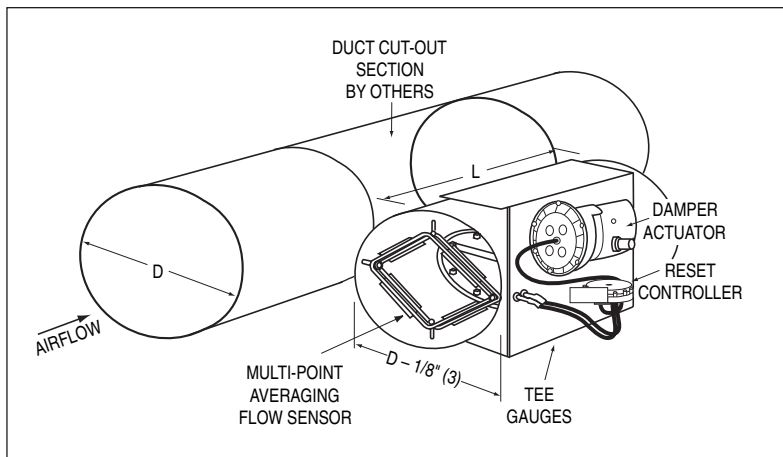
- VARIABLE AIR VOLUME  
CONVERSION

Model 36VRR is designed for round ductwork retrofit application. Terminals are available in 10 sizes and are nominally undersized to ensure a good fit.

Easy, low-cost installation into existing ductwork. The installer cuts out a section in the round duct and replaces the duct section with the conversion unit.

#### FEATURES:

- Casing 22 ga. (0.86), corrosion-resistant steel with stiffening beads. Size 14 and 16 are 20 ga. (0.91).
- Blade: Two layers of 22 ga. (0.86), corrosion-resistant steel laminated together (equivalent to 16 gauge) with a cross-linked polyurethane peripheral gasket for tight shut-off, 90° rotation, CCW to open. Damper leakage is less than 2% of nominal CFM @ 6" w.g. as tested in accordance with ANSI/ASHRAE Standard 130.
- Bearing: Self-lubricating oilite bronze.
- Drive Shaft/Axles: 1/2" (13) diameter plated steel, double-bolted to blades. Indicator mark on the end of the shaft to show damper position.
- Full electrical controls enclosure for factory mounted DDC and analog electronic controls.
- Multi-point averaging 'Diamond Flow' sensor: Aluminium.

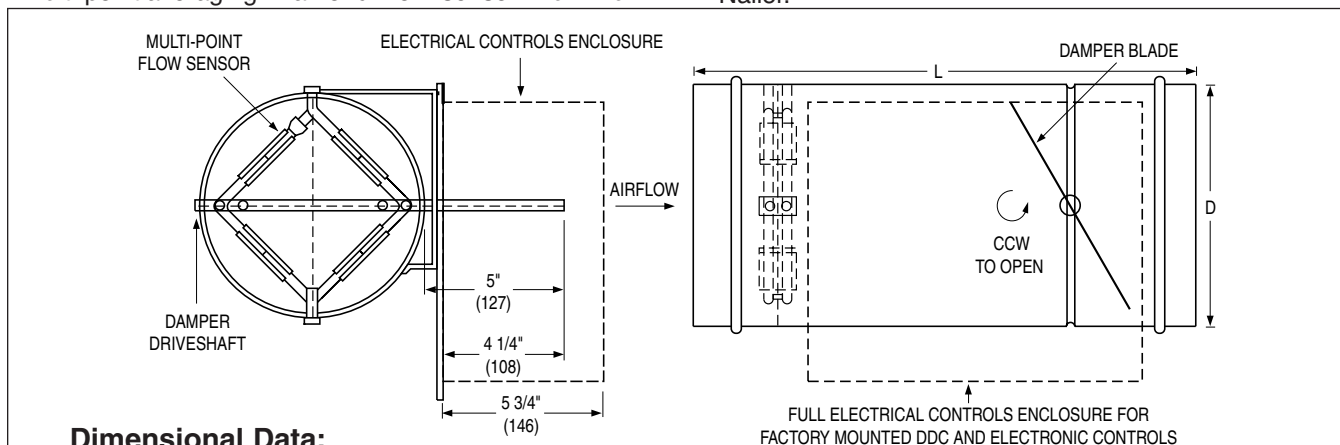


Gauge taps are provided for field balancing when controls are factory mounted.

- Right-hand control location is standard (as shown). Left-hand is optional.

#### Options:

- Available in Type 304 and 316 stainless steel construction for laboratory/fume hood exhaust applications.
- Controls enclosure for field mounted controls.
- 24 volt control transformer.
- Toggle disconnect switch.
- Pneumatic or Analog Electronic Pressure Independent controls by Nailor. Factory mounted and calibrated.
- Digital controls by BMS Contractor. Factory mounted by Nailor.



#### Dimensional Data:

Imperial Units (inches)			
Unit Size	cfm Range	D*	L
4	0 - 215	3 7/8	22
5	0 - 310	4 7/8	22
6	0 - 500	5 7/8	18
7	0 - 710	6 7/8	18
8	0 - 1000	7 7/8	18
9	0 - 1300	8 7/8	20
10	0 - 1435	9 7/8	20
12	0 - 2150	11 7/8	20
14	0 - 3060	13 7/8	22
16	0 - 4050	15 7/8	22

Metric Units (mm)			
Unit Size	l/s Range	D*	L
4	0 - 101	98	559
5	0 - 146	124	559
6	0 - 236	149	457
7	0 - 355	175	457
8	0 - 472	200	457
9	0 - 614	225	508
10	0 - 677	251	508
12	0 - 1015	302	508
14	0 - 1444	352	559
16	0 - 1912	403	559

\* Size 4 & 5 are supplied as a size 6 valve with reducers at both ends.