

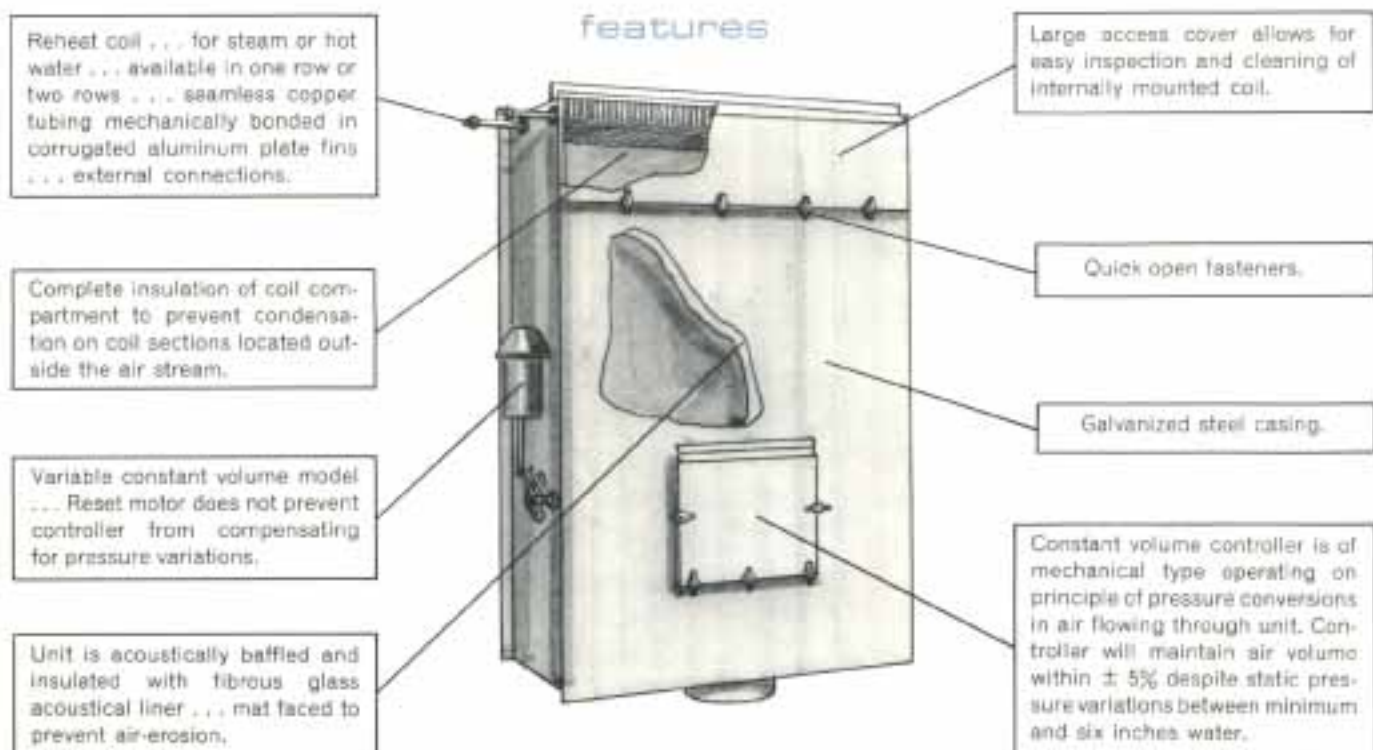


## HIGH VELOCITY MECHANITROL REHEAT

with constant volume or variable constant volume

The Carnas High Velocity Mechanitrol reheat ATC unit is designed to:

1. Reheat chilled primary air so as to allow the use of a single duct system for year around air conditioning with individual zone control at reasonable cost, in minimum space, and with system simplicity.
2. Reduce high velocities and pressures for discharge of the air at conventional low-velocity values.
3. Add heat to the primary air in response to the space thermostat and water or steam valve.
4. Attenuate self-generated and duct air-borne noises.
5. Automatically control the volume of air discharge despite system static pressure unbalance.
6. Prevent leakage in excess of 3% of nominal capacity (Per ADC Code 1062R2, nominal capacity is based on 3000 FPM inlet velocity) when all connections are sealed with pressures of eight inches water upstream and one inch water downstream of volume controller.



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## Model Y variable constant volume



**75 to 2000 CFM** . . . Nine sizes for ceiling mounting . . . End discharge.

The quantity of chilled primary air is varied in response to the room thermostat. The pneumatic motor is factory installed to reset the controller between any two limits within the catalogued capacity range of 100% - 50%.

The motor is field connected in parallel with the normally open coil valve. The springs in motor and valve are sequenced.

When the direct acting thermostat calls for full cooling, motor has controller set to high CFM and coil valve is closed.



**1600 to 5600 CFM** . . . Three sizes for ceiling mounting . . . End discharge.

When thermostat calls for less cooling, motor resets volume controller to maintain a lower flow rate of primary air. Valve remains closed.

When thermostat calls for tempered air, motor adjusts volume controller to minimum primary air and valve starts to open to provide heating.

Upon further call for tempering, motor maintains controller at minimum air and valve opens fully for maximum heating.

## Model Z constant volume



**75 to 2000 CFM** . . . Nine sizes for ceiling mounting . . . End discharge.

The CFM factory set per order with actual air flow. The CFM can be reset after installation at any point between 100% and 50% capacity by external dial. Merely loosen thumb nut and turn lever to new CFM.

The temperature of the air supplied by the unit is varied in response to the room thermostat.



**1600 to 5600 CFM** . . . Three sizes for ceiling mounting . . . End discharge.

When the direct acting thermostat calls for full cooling, coil valve is closed.

When thermostat calls for tempered air, valve starts to open to provide heating.

Upon further call for tempering, valve opens fully for maximum heating.



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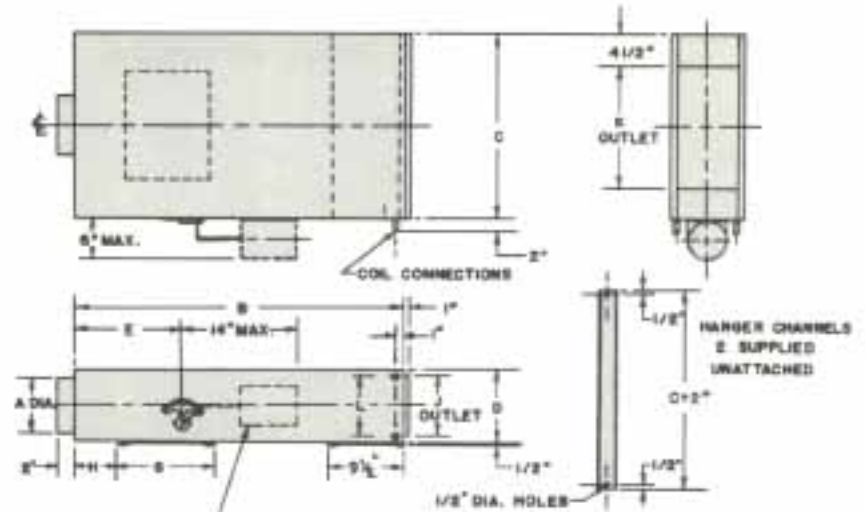
## dimensional data

### 75 to 2000 CFM

	UNIT SIZE NUMBER							
	4	5	6	7	8	9	10	12
	DIMENSIONS, INCHES							
A	4	5	6	7	8	9	10	12
B	33	38	42	46	50	58	60	62
C	17	21	23	25	27	30	32	35
D	7 3/4	7 3/4	8 3/4	9 3/4	10 3/4	11 3/4	12 3/4	14 3/4
E	8 1/2	11 1/2	11 1/2	12 1/2	12 3/4	15 3/4	16 1/4	17 3/4
G	10 1/2	13 1/2	13 1/2	13 1/2	13 1/2	18	18	18
H	4	5 1/2	6 1/4	7	7 1/2	8 1/2	9 1/4	10 1/2
J	6	6	7	8	9	10	11	13
K	8	12	14	16	18	21	23	26
L	5 3/4	5 3/4	6 3/4	8 1/4	9 3/4	9 3/4	10 3/4	13 1/2
1-Row*	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
2-Row*	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2

Right hand locations are shown for coil connections. Left hand may be ordered. Right hand location for reset operator is standard.

Model Y unit is shown. Model Z unit is same except it does not have pneumatic motor mounting.



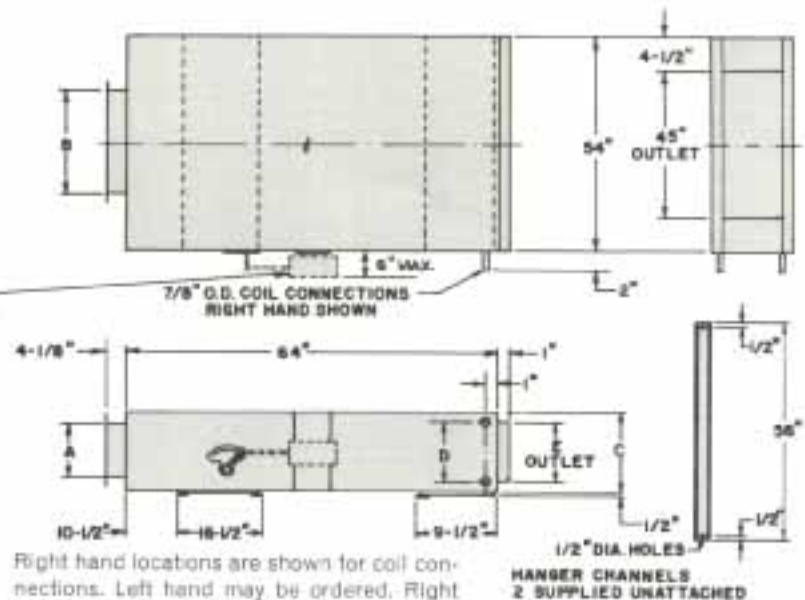
Pneumatic operator for reset of volume controller to be provided by control contractor and factory mounted by Carnes. Operator must be provided with adjustable stops to limit rotation of controller shaft to any maximum and minimum positions within 90°. Valves for reheat coils are field installed by others.

### 1600 to 5600 CFM

	UNIT SIZE NUMBER		
	1414	1616	1620
	DIMENSIONS, INCHES		
A	14	16	16
B	14	16	30
C	16 3/4	18 3/4	18 3/4
D	13 1/4	15 3/4	15 3/4
E	15	17	17

Model Y unit is shown. Model Z unit is same except it does not have pneumatic motor mounting.

Pneumatic operator for reset of volume controller to be provided by control contractor and factory mounted by Carnes. Operator must be provided with adjustable stops to limit rotation of controller shaft to any maximum and minimum positions within 90°. Valves for reheat coils are field installed by others.



Right hand locations are shown for coil connections. Left hand may be ordered. Right hand location for reset operator is standard.

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## suggested specifications

**TERMINAL REHEAT UNITS:** Units shall be Carnes high velocity reheat acoustic terminal control units.

**Capacities:** Each unit shall deliver the air capacity specified on the mechanical drawings with inlet velocity not in excess of 2000 FPM and with minimum static pressure drop not in excess of 1.1 inches water with one-row coil nor 1.3 inches with two-row coil. The specified CFM shall be within the catalogued limits of the unit, and the low limit shall be not greater than 50% of the high limit. Units shall have catalogued performance ratings for CFM, static pressure drop, heating capacity.

**Temperature Control:** A reheat coil for hot water or steam shall be provided to heat the primary supply air to required room conditions. Coil shall be controlled by valve and room thermostat supplied and installed by others.

**Reheat Coil:** The reheat coil shall be located for uniform face velocity. Hand of coil connections shall be easily reversible in the field. Coil shall be constructed of seamless copper tubing and mechanically bonded aluminum plate fins, tested at not less than 350 psig.

**Constant volume Controller:** Controller shall be self-contained and maintain air volume within 15% despite inlet static pressure variations between minimum and 6 inches water. Controller shall be factory set with air flow for CFM and shall have an exterior CFM dial and adjustment shaft to allow re-setting to any CFM within the limits specified under "Capacities" above. The complete range of adjustment shall be obtainable within less than one complete revolution of adjustment shaft.

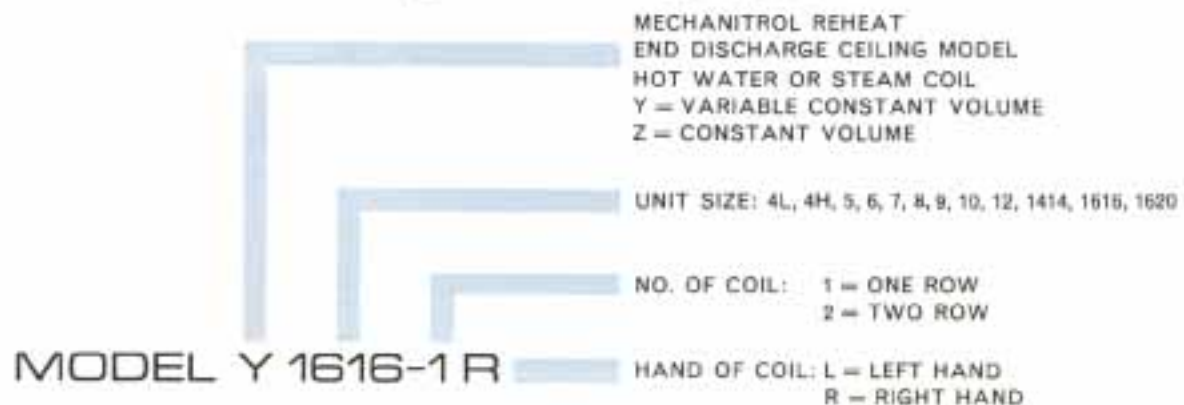
**Casing:** Casing shall be of galvanized steel construction, sealed to prevent leakage in excess of 3% of nominal capacity (based on 3000 FPM inlet velocity) when all connections are sealed against pressure of 8 inches water upstream, and 1 inch water downstream, of volume controller.

**Insulation:** The interior of the casing and baffles shall be covered with 1 inch thick mat-faced fibrous glass acoustical liner with cut edges covered so no raw edges face the air flow.

**Sound Ratings:** Units shall be rated in sound power level (PWL-NC Index) in decibels re 10<sup>-12</sup> watt.

**Variable Constant Volume:** Where specified, units shall be equipped with a pneumatic motor to adjust the volume controller to operate at any CFM between the high and low limits specified on the drawings. The combination shall be such that the motor does not prevent the controller from compensating for pressure variations. The motor shall be furnished by the temperature control contractor and factory installed by the terminal unit manufacturer.

## catalog numbering system



**CONTROLS:** Valves for reheat coils are field installed by others.