

The Carnes constant volume fan terminal unit provides constant air volume to the space while retaining the advantages of a variable air volume system.

The primary air control assembly operates in the same manner as a standard throttling control valve when cooling loads are high. As cooling loads diminish the integral blower(s) induces warm ceiling plenum air to maintain constant air volume.

Sequence of Operation

Central fan on — Day (occupied) operation

When the central station fan is on and a positive pressure of at least .10 IWC is present at the primary air inlet, the unit air flow switch senses this pressure and keeps the fan on all the time by overriding the unit P/E switch action with pneumatic controls or electric contactor with electronic controls.

Central fan off — Night (unoccupied) operation

When the central station fan is off a 0.0 to negative pressure is present at the primary air inlet. The air flow switch senses this negative pressure and is taken out of the circuit. The unit fan is then turned on and off by the P/E switch with pneumatic controls or electric contactor with electronic controls.

Features Include:

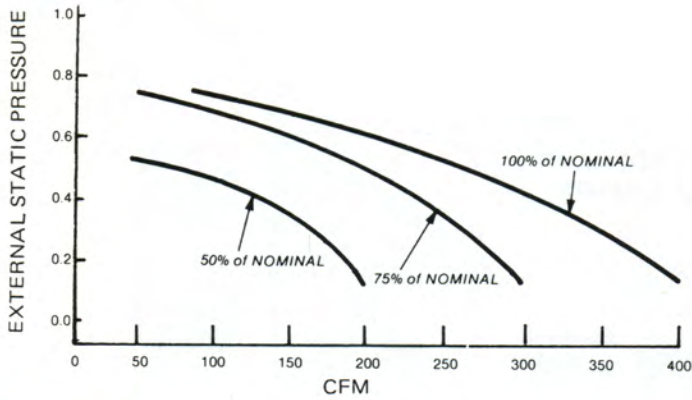
- Air flow capacities to 3200 CFM.
- Access panel for internal components.
- Standard round inlet sizes and S and drive discharge connections.
- Forward curved centrifugal type fan assemblies with 115, 208 or 277 volt, single phase SCR speed controlled permanent split capacitor type fractional horsepower motors.
- Fan/motor assemblies are isolated from the casing using rubber isolators to minimize vibration transmission.
- Air flow switches.
- All units are equipped with pressure independent pneumatic or electronic controls.
- Field adjustable P/E switch with pneumatic controls.
- Insulation is 1½ lb. density fiberglass with surface treated to prevent erosion, meets NFPA 90A requirements.
- Velocity sensor and calibration chart for measuring air flow through the primary air damper.
- Optional one or two row hot water coils (*Models ACWA/ACWE*). Coil is attached to unit discharge.
- Optional one, two or three stage electric reheat coils (*Models ACEA/ACEE*). Coil is attached to unit discharge.
- Optional ETL listing (*Models ACFE/ACWE/ACEE*).
- Optional filter rack.
- Optional quick release access panel.
- Optional fire rated tubing.
- Optional foil coated insulation (hospital, laboratory, etc. applications).

Available Modules:

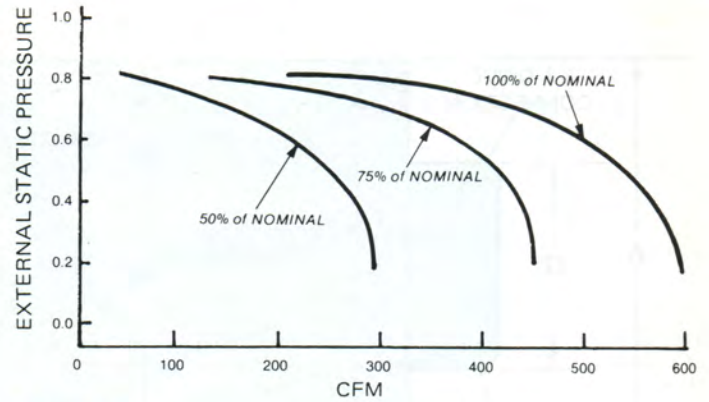
- Basic Control Unit—Model ACFA/ACFE.
- Basic control unit with hot water coil—Model ACWA/ACWE.
- Basic control unit with or without electric coil—Model ACEA/ACEE.
- Sound attenuator—Model AXAA (See Section 5-Accessories).
- Multi-discharge adaptor—Model AXMA (See Section 5-Accessories).

CFM vs External Static Pressure

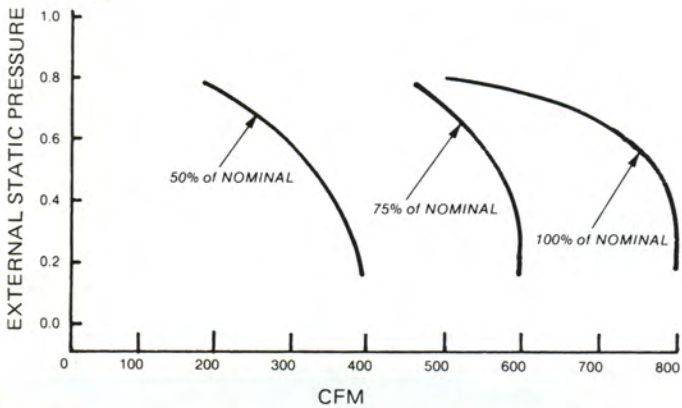
Unit Size 04



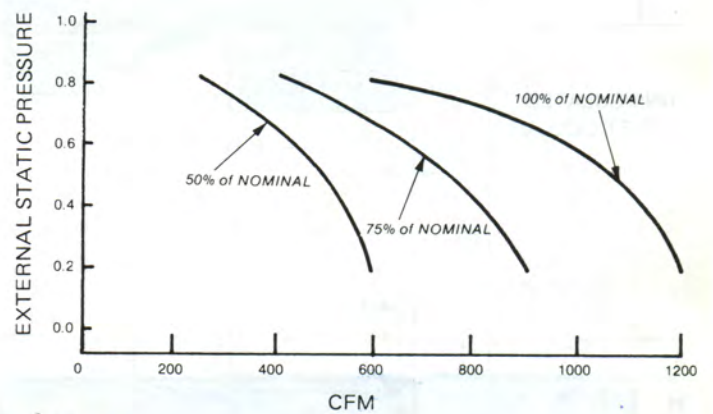
Unit Size 06



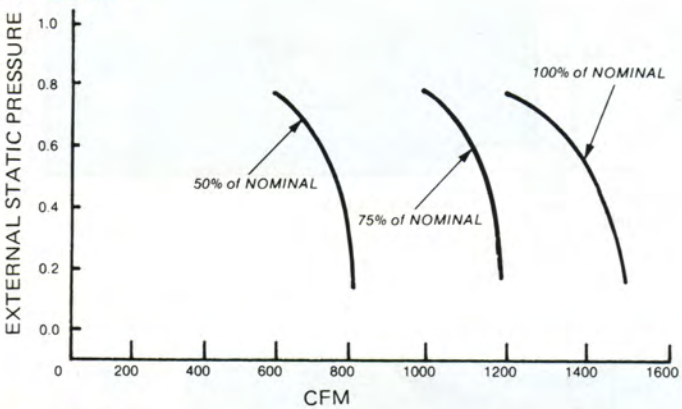
Unit Size 08



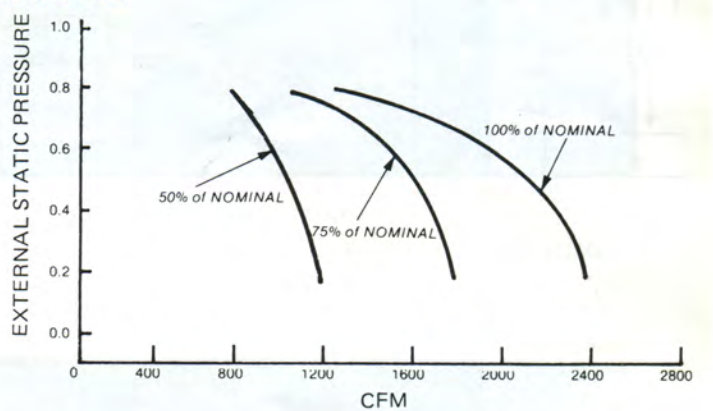
Unit Size 12



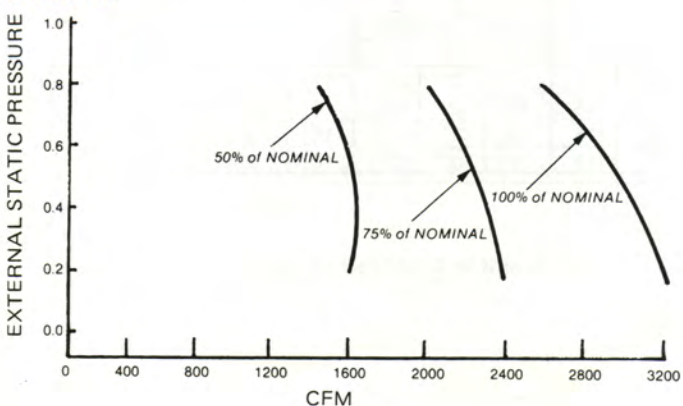
Unit Size 16



Unit Size 24

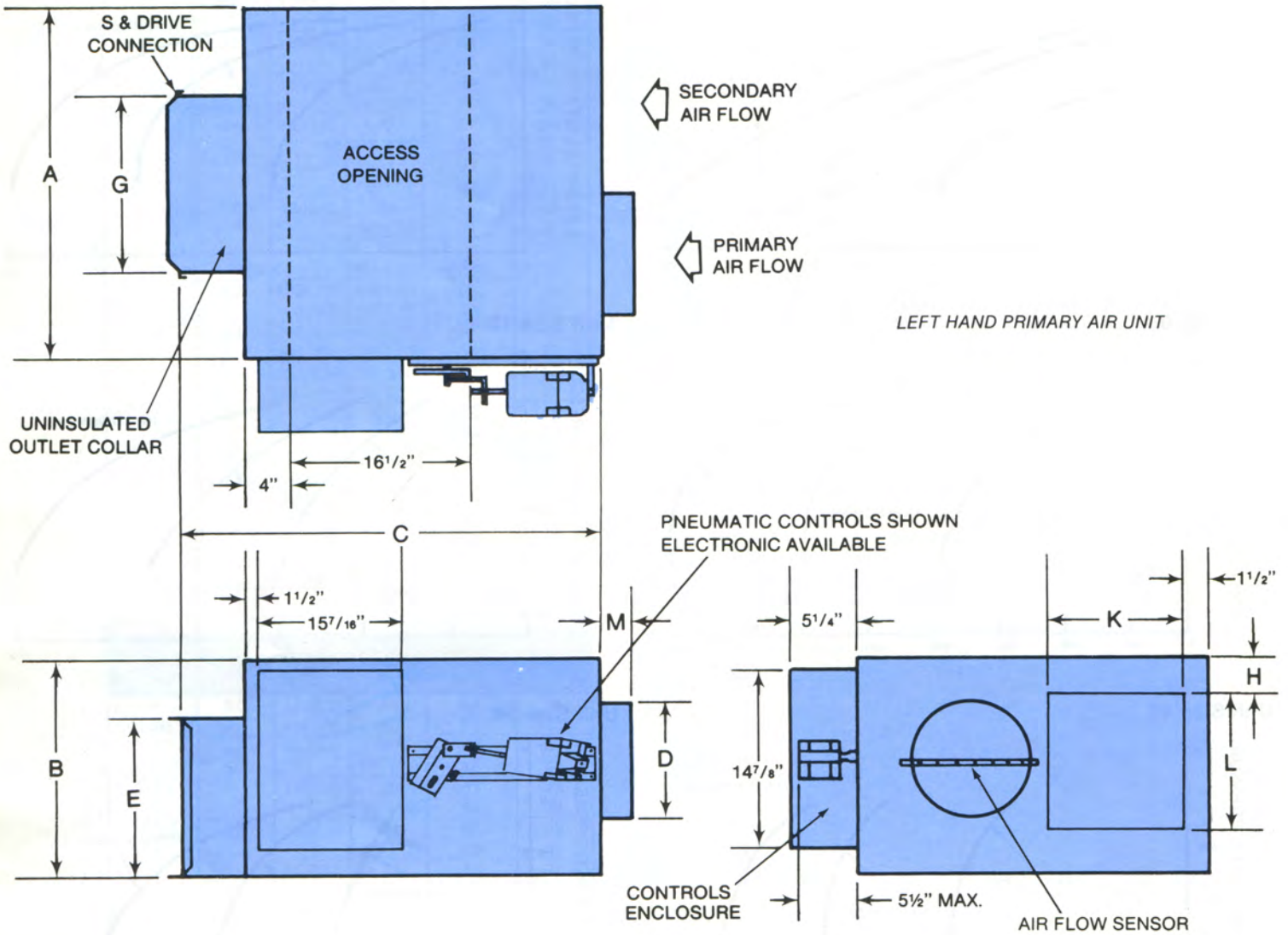


Unit Size 32



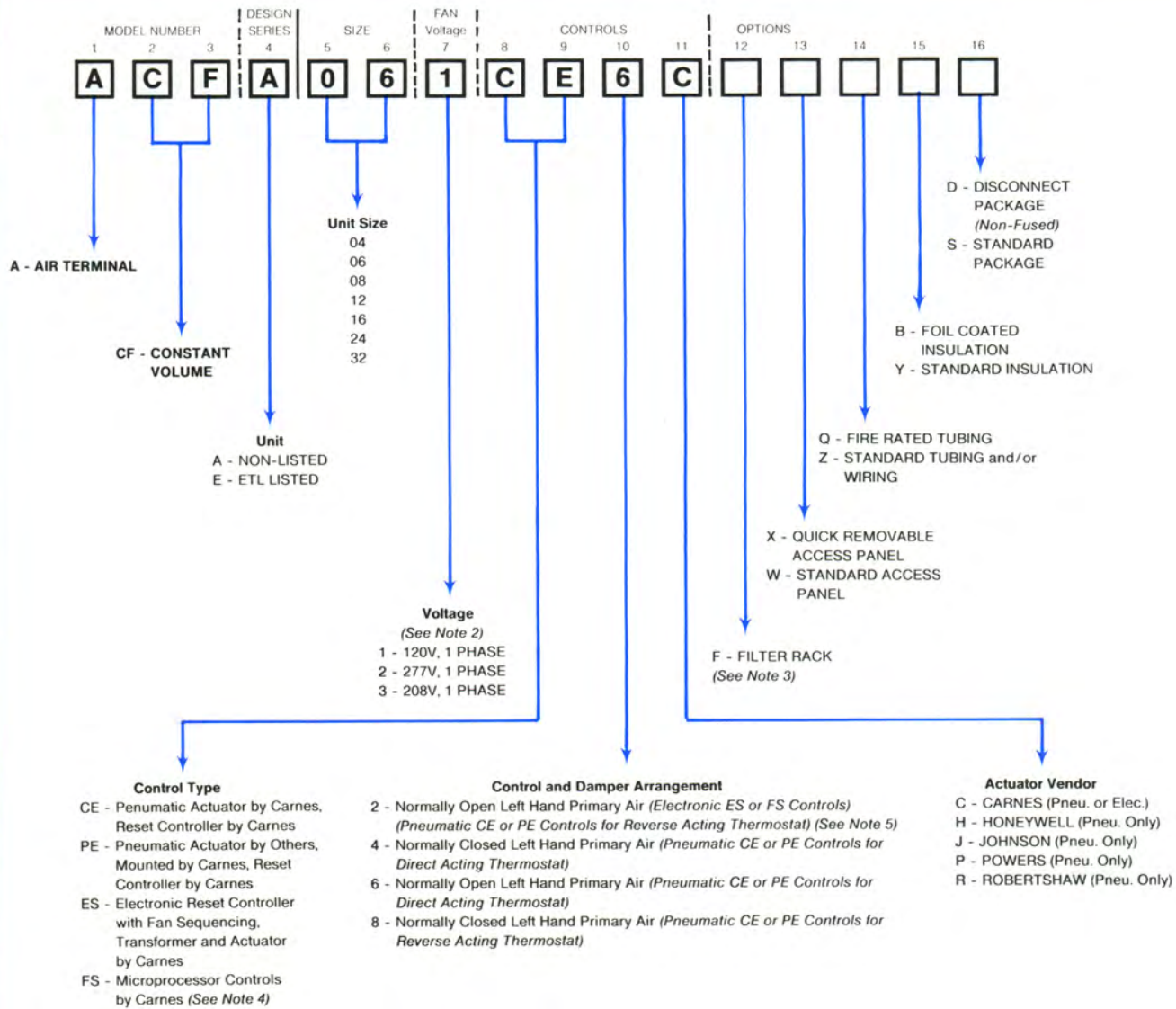
NOTE: Pressure drops due to heating coils are treated as external static pressures. (Refer to coil sections of this catalog for additional information.)

2 Dimensional Data—Models ACFA/ACFE Constant Volume Fan Powered Unit



Unit Size	Nominal CFM	Fan HP	A	B	C	D	S & Drive Outlet			Secondary Air Inlet		
							E	G	H	K	L	M
04	400	1/8	19 1/2	18	34	6	8	10	5	6 1/2	8	2 3/8
06	600	1/6	24	18	36	7	10	12	4	9	10	2 3/8
08	800	1/4	26	18	36	8	12	14	4	11	10	2 3/8
12	1200	1/3	31	18	38	10	14	16	3	14	12	2 3/8
16	1600	1/2	33 1/2	18	41	12	16	18	2	14 1/2	14	2 3/8
24	2400	(2) 1/3	42	18	42	14	18	32	1	21	16	2 5/8
32	3200	(2) 1/2	46 1/2	20	45	16	18	32	1	23 1/2	18	2 5/8

Dimensions listed in inches.



- NOTES:** 1. Hand is determined by facing the unit in the direction of air flow into the unit from supply duct.
 2. Standard motor voltages are 277 or 208 volts for sizes 04-32 and 115 volts for sizes 04-16.
 3. Filter not included with filter rack.
 4. Microprocessor Controls include controller with fan sequencing, actuator, transformer and inlet air flow sensor. (Not available with "E" design series.)
 5. Electric/Electronic units do not fail open. "2" is used for model identification only. (Refer to controls section of this catalog for additional operating information.)