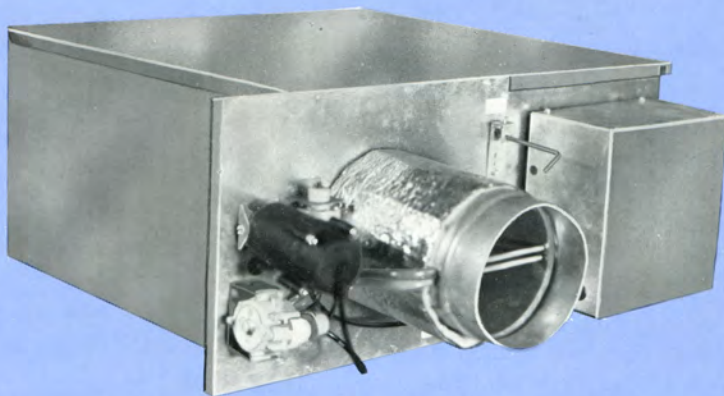


Model ASF w/o Reheat  
Model ATF w/o Reheat

Model ASW w/Hot Water Reheat  
Model ATW w/Hot Water Reheat

Model ASE w/Electric Reheat  
Model ATE w/Electric Reheat



**The Carnes** intermittent fan terminal unit provides constant air volume to the space for reheat applications while retaining a variable air volume system during normal cooling operation.

The primary air control assembly operates independently as a standard throttling control valve for cooling loads. As cooling loads diminish, the secondary air supply fan(s) is energized to induce warm ceiling plenum air. A wide variety of control sequences makes this fan powered unit compatible with the most energy efficient system design.

*Other Features Include:*

- Fourteen unit sizes offering air flow capacities to 7300 CFM primary air and 3400 CFM secondary air with low pressure drop and low sound levels.
- Durable 22 gauge galvanized steel casing construction.
- Standard inlet and discharge connections.
- Forward curved centrifugal type fan assemblies with three speed, thermally protected, permanent split capacitor type 115 or 277 volt fractional horsepower motors.
- Fan/motor assemblies are isolated from the casing using rubber isolators to minimize vibration transmission.
- Field adjustable fan air flow damper (between three speeds).
- Field adjustable P/E switch with pneumatic controls.
- Performance data based on tests conducted in accordance with ARI Standard 880-89.
- Averaging type velocity sensor and calibration chart for measuring primary air flow.
- Secondary air filter rack.
- All units equipped with pneumatic or electronic pressure independent controls.
- Insulation is 1" thick, 1½ lb. dual density fiberglass with surface treated to prevent air erosion, UL listed and meets NFPA 90A requirements.
- Low leakage primary air damper design.
- Optional ETL listing.
- Optional fan speed selector switch.
- Optional primary air controls enclosure.
- Optional secondary air sound baffle. Sound baffle is factory attached to secondary air inlet.
- Optional one or two row hot water coils (Models ASW and ATW). Coil is factory attached to primary air discharge.
- Optional electric reheat coils (Models ASE and ATE). Coil is factory attached to primary air discharge, or shipped separately for field mounting.
- Optional secondary air filters, Class I (re-usable) and Class II (throw away).
- Optional non-fused fan disconnect switch.
- Optional foil coated insulation (Hospital, Laboratory, etc. applications).

*Available Modules:*

- Basic control unit—Models ASF/ATF.
- Basic control unit with hot water coil—Models ASW/ATW.
- Basic control unit with or without electric coil—Models ASE/ATE.



**Typical Sequence of Operation**

**Central fan on — Day (occupied) operation.**

When the central system fan is "on", the intermittent fan unit operates as a standard throttling control unit for cooling loads. As the cooling load diminishes the control valve throttles to a minimum or closed position, the fan is energized by the P/E switch for pneumatic controls or an electric contactor for electronic controls to draw in warm plenum air.

**Central fan off — Night (unoccupied) operation.**

When the central system fan is "off" on a call for less cooling, the primary air supply valve closes. The unit fan is then turned on

and off by the P/E switch for pneumatic controls or an electric contactor for electronic controls on demands for heat and not heat respectively.

- CAUTION:**
1. For electronically controlled units, a minimum CFM value other than zero may cause the damper to drive open when the central system is off.
  2. The "ES" (morning warm-up) electronic option requires a minimum airflow other than zero for proper duct temperature sensing.

**PERFORMANCE DATA — Intermittent Volume Fan Terminal Units** .....

**Motor Full Load Amp (FLA) Rating**

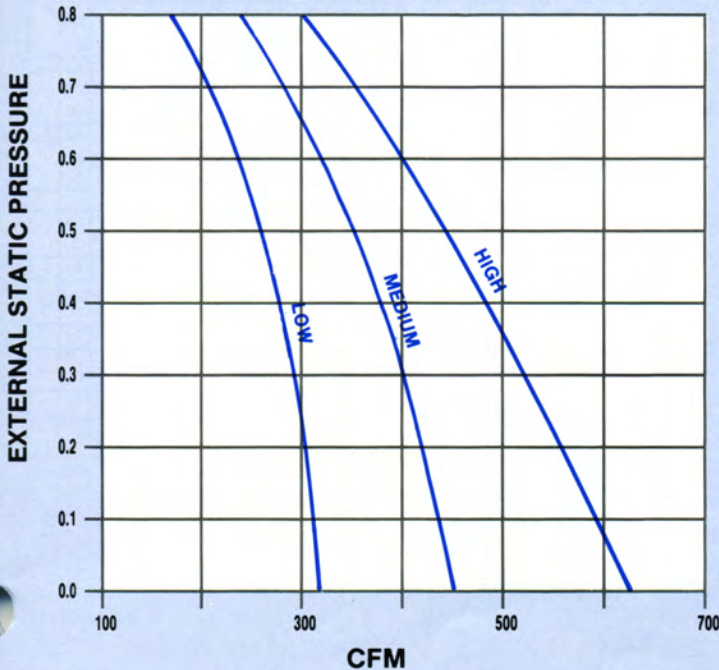
Fan Unit Model	Unit Size	Motor(s) H.P.	120 Volt Motors(s) FLA	277 Volt Motors(s) FLA
AS	06	1 @ 1/6	2.0	.8
AT	08			
AS	07	1 @ 1/6	2.0	.8
AT	10			
AS	08	1 @ 1/5	2.2	.9
AT	12			
AS	10	1 @ 1/4	3.2	1.2
AT	14			
AS	12	1 @ 1/2	6.2	2.3
AT	16			
AS	14	2 @ 1/4	6.4	2.4
AT	18			
AS	16	2 @ 1/2	12.4	4.6
AT	24			

**FAN CURVES — CFM vs External Static Pressure**

**Models AS 06 & 07 — AT 08 & 10**

1/6 H. P. Motor

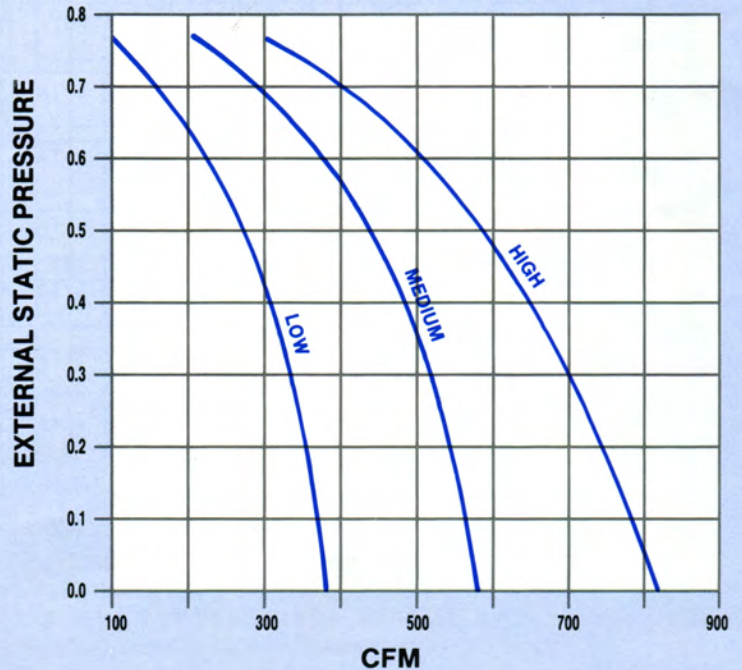
F.L.A.: 2.0A @ 120V .8A @ 277V



**Models AS 08 — AT 12**

1/5 H. P. Motor

F.L.A.: 2.2A @ 120V .9A @ 277V



- NOTES:**
1. Pressure drops due to heating coils are treated as external static pressures (Refer to coil sections of this catalog for additional information.)
  2. F.L.A. = Full Load Amps of motor.

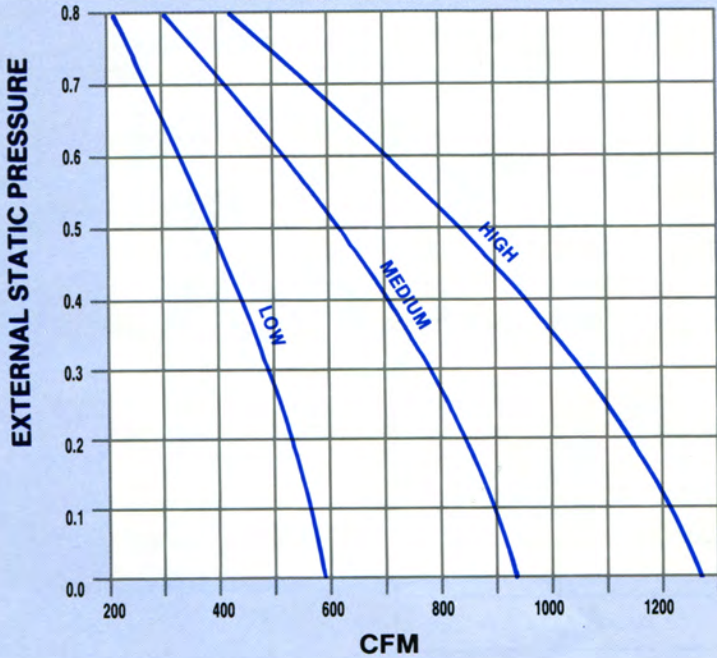


**FAN CURVES — CFM vs External Static Pressure**

**Models AS 10 — AT 14**

1/4 H. P. Motor

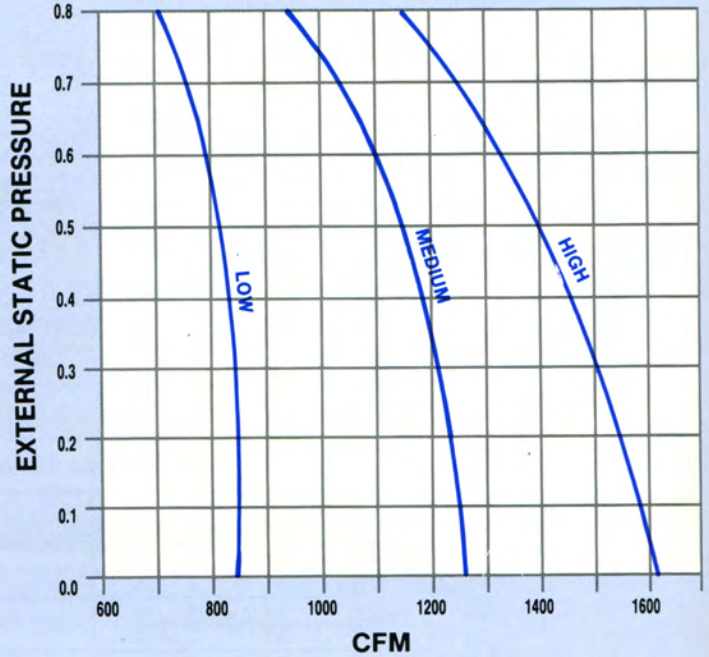
F.L.A.: 3.2A @ 120V 1.2A @ 277V



**Models AS 12 — AT 16**

1/2 H. P. Motor

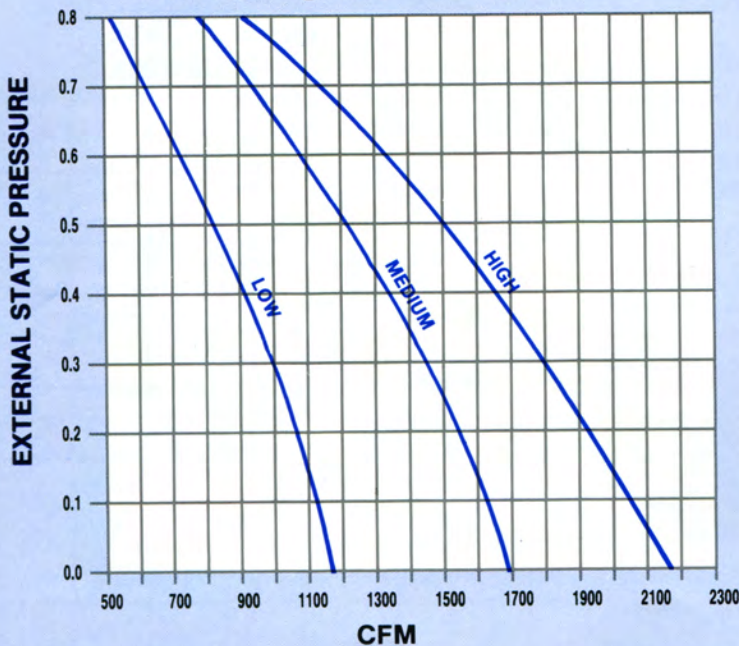
F.L.A.: 6.2A @ 120V 2.3A @ 277V



**Model AS 14**

(2) 1/4 H. P. Motors

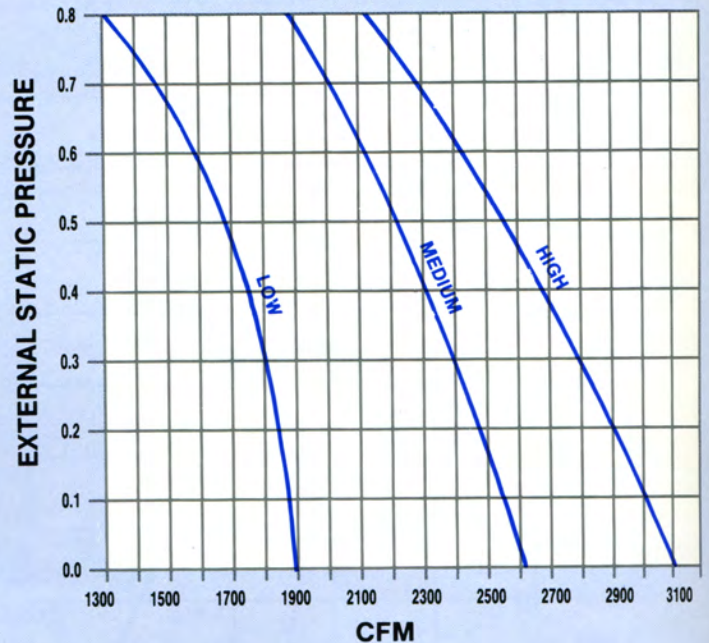
F.L.A.: 6.4A @ 120V 2.4A @ 277V



**Model AS 16**

(2) 1/2 H. P. Motors

F.L.A.: 12.4A @ 120V 4.6A @ 277V



- NOTES:** 1. Pressure drops due to heating coils are treated as external static pressures (Refer to coil sections of this catalog for additional information.)  
 2. F.L.A. = Full Load Amps of motor.

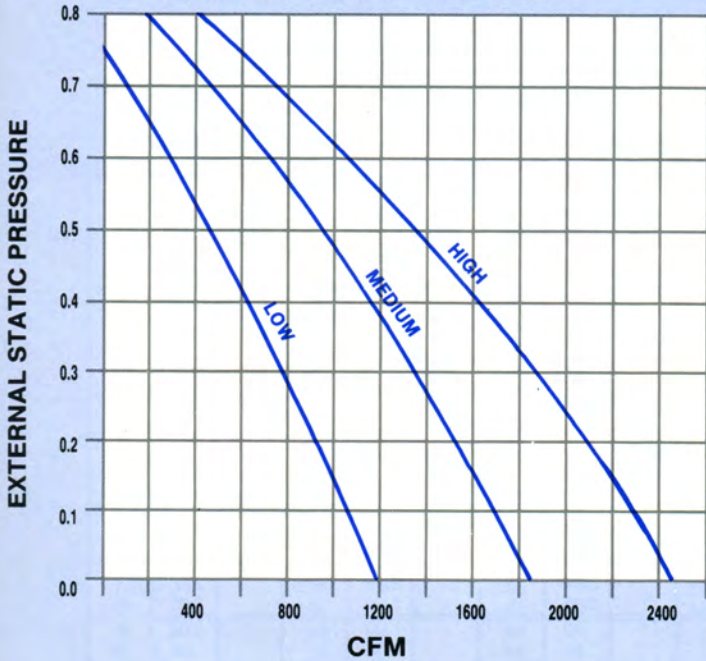


**FAN CURVES – CFM vs External Static Pressure**

**Model AT 18**

(2) 1/4 H. P. Motors

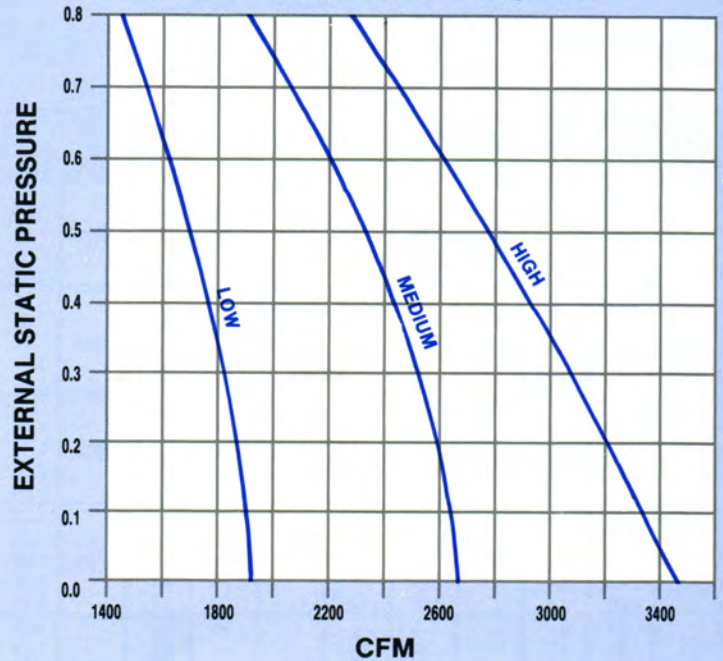
F.L.A.: 6.4A @ 120V 2.4A @ 277V



**Model AT 24**

(2) 1/2 H. P. Motors

F.L.A.: 12.4A @ 120V 4.6A @ 277V



- NOTES: 1. Pressure drops due to heating coils are treated as external static pressures (Refer to coil sections of this catalog for additional information.)  
 2. F.L.A. = Full Load Amps of motor.

**SOUND PERFORMANCE DATA**

**Radiated Sound Data with and without Attached Sound Baffle (FAN ON)**

Fan Speed	ESP	Unit Size	CFM	With Sound Baffle	No Sound Baffle	Unit Size	CFM	With Sound Baffle	No Sound Baffle
				Radiated NC	Radiated NC			Radiated NC	Radiated NC
HI	.25	AS06	495	22	27	AT08	495	22	27
MED	.25		400	18	22		400	18	22
LO	.25		290	14	18		290	14	18
HI	.25	AS07	495	22	27	AT10	495	22	27
MED	.25		400	18	22		400	18	22
LO	.25		290	14	18		290	14	18
HI	.25	AS08	640	21	25	AT12	640	21	25
MED	.25		490	19	23		490	19	23
LO	.25		305	15	20		305	15	20
HI	.25	AS10	975	19	21	AT14	975	19	21
MED	.25		755	16	18		755	16	18
LO	.25		515	14	15		515	14	15
HI	.25	AS12	1315	25	28	AT16	1315	25	28
MED	.25		1145	22	21		1145	22	21
LO	.25		850	15	18		850	15	18
HI	.25	AS14	1770	27	28	AT18	1780	27	28
MED	.25		1550	22	23		1370	22	23
LO	.25		1040	18	20		795	18	20
HI	.25	AS16	2675	27	28	AT24	3030	27	28
MED	.25		2361	23	24		2505	23	24
LO	.25		1785	20	21		1810	20	21

- NOTES: 1. Performance data on this page is considered to be application data. Although this data is presented in a format that cannot be certified, it is based on testing in accordance with ARI Standard 880. Certified performance data is shown on page 71.  
 2. Secondary Air Sound Data is tested with the primary air damper closed.  
 3. External Static Pressure (ESP) is pressure due to the air flow adjustment damper, heating coils, and/or downstream ductwork.  
 4. The CFM indicated is the maximum attainable at the external static pressure (ESP) shown.

**NC LEVELS ARE CALCULATED IN ACCORDANCE WITH ARI 885-90. NC LEVELS ARE NOT WITHIN THE SCOPE OF ARI STANDARD 880 AND THEREFORE CANNOT BE CERTIFIED.**

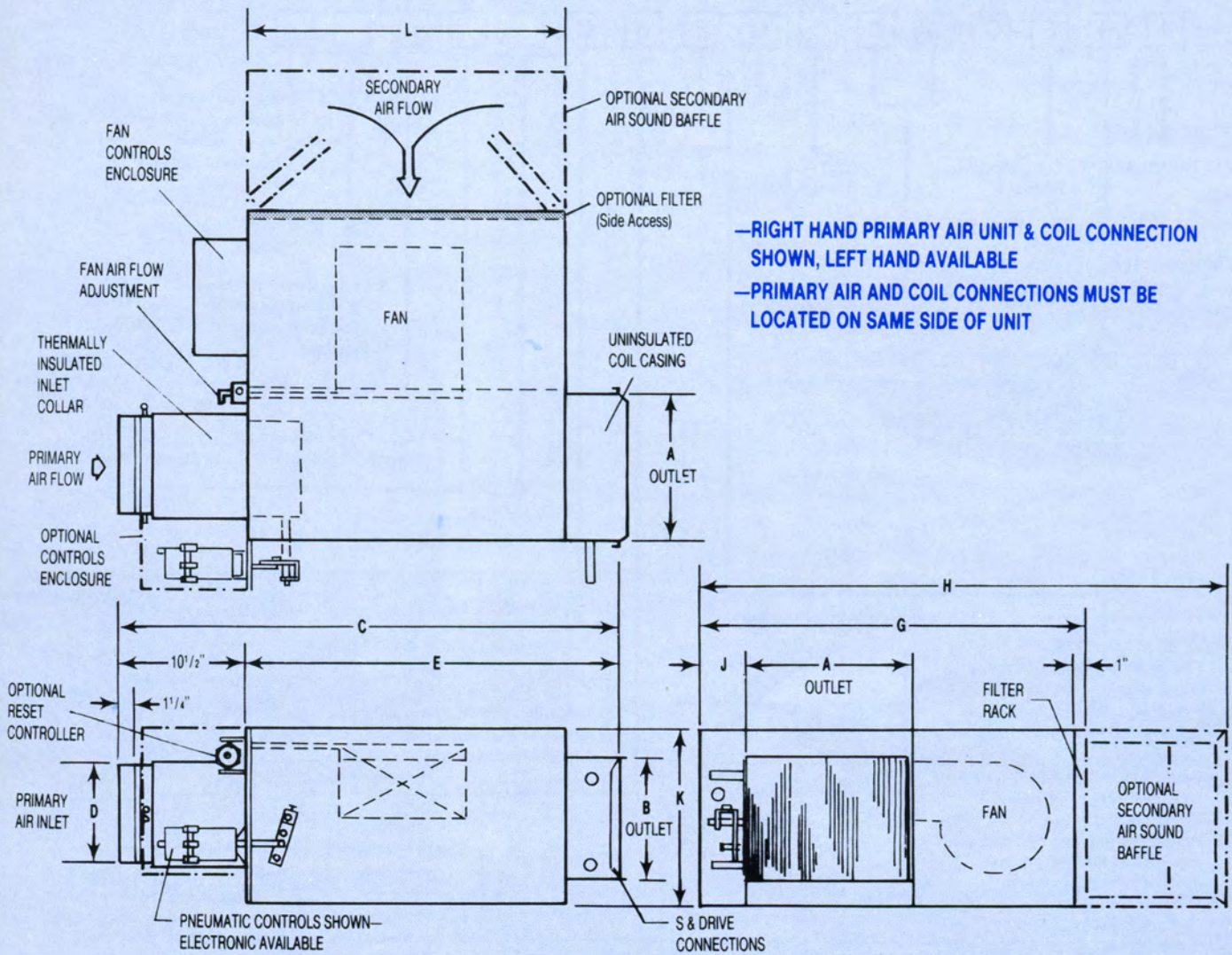
Radiated NC levels are based on:

- a) Plenum/ceiling effect - 5/8" mineral fiber tile, 35 lb/ft<sup>3</sup>  
 - 3 foot plenum
- b) Space effect factor (5000 ft<sup>3</sup>) at 10 feet from outlet
- c) 10 db for room absorption





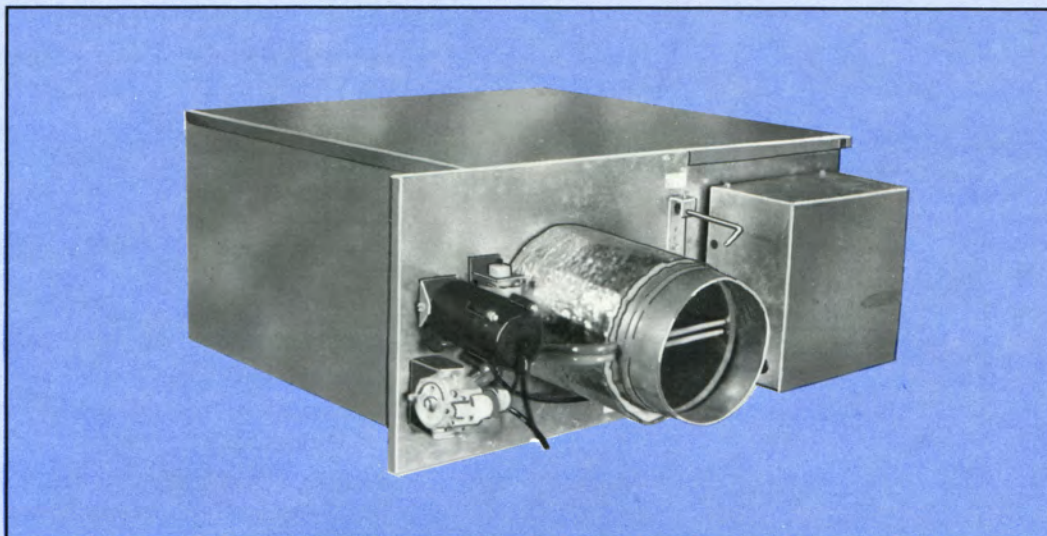




DIMENSIONS LISTED IN INCHES																
Models	Unit Size	*Primary Nominal CFM	Secondary Nominal CFM @ .10" E.S.P.	Fan H.P.	S & Drive Outlet		1 Row C	2 Row C	Inlet H x W D	1 Row E	2 Row E	G	H	J	K	L
					A	B										
ASW	06	500	580	1/6	14	10	39%	41	5 7/8	29 1/2	30 1/2	31 3/4	43 3/4	3 1/2	14	26
	07	700	580	1/6	14	10	39%	41	6 7/8	29 1/2	30 1/2	31 3/4	43 3/4	3 1/2	14	26
	08	1000	770	1/5	14	10	39%	41	7 7/8	29 1/2	30 1/2	31 3/4	43 3/4	3 1/2	14	26
	10	1500	1220	1/4	16	15	39%	41	9 7/8	29 1/2	30 1/2	36 1/4	48 1/4	3 1/2	17 1/2	26
	12	2300	1575	1/2	16	15	39%	41	11 7/8	29 1/2	30 1/2	36 1/4	48 1/4	3 1/2	17 1/2	26
	14	3100	2060	(2) 1/4	24	17 1/2	59%	61	13 7/8	49 1/2	50 1/2	44 1/4	61 1/4	3 1/2	17 1/2	46
	16	4200	3020	(2) 1/2	24	17 1/2	59%	61	15 7/8	49 1/2	50 1/2	44 1/4	61 1/4	3 1/2	17 1/2	46
ATW	08	1000	580	1/6	14	10	39%	41	7 7/8	29 1/2	30 1/2	31 3/4	43 3/4	3 1/2	14	26
	10	1500	580	1/6	14	10	39%	41	9 7/8	29 1/2	30 1/2	31 3/4	43 3/4	3 1/2	14	26
	12	2300	770	1/5	16	12 1/2	39%	41	11 7/8	29 1/2	30 1/2	33 3/4	45 3/4	3 1/2	14	26
	14	3100	1220	1/4	24	17 1/2	39%	41	13 7/8	29 1/2	30 1/2	44 1/4	56 1/4	3 1/2	17 1/2	26
	16	4200	1575	1/2	24	17 1/2	39%	41	15 7/8	29 1/2	30 1/2	44 1/4	56 1/4	3 1/2	17 1/2	26
	18	5500	2310	(2) 1/4	32	17 1/2	59%	61	15 7/8 x 17 7/8	49 1/2	50 1/2	52 7/8	69 7/8	4 1/2	17 1/2	46
	24	7300	3380	(2) 1/2	32	17 1/2	59%	61	15 7/8 x 23 7/8	49 1/2	50 1/2	52 7/8	69 7/8	4 1/2	17 1/2	46

\* Refer to "Primary Air Inlet Parameters" (page 6) when selecting MINIMUM CFM.





**The Carnes** low profile intermittent fan terminal unit provides constant air volume to the space for reheat applications while retaining a variable air volume system during normal cooling operation.

The primary air control assembly operates independently as a standard throttling control valve for cooling loads. As cooling loads diminish, the secondary air supply fan(s) is energized to induce warm ceiling plenum air. A wide variety of control sequences makes this fan powered unit compatible with the most energy efficient system design.

*Other Features Include:*

- Four unit sizes offering air flow capacities to 2100 CFM primary air and 1800 CFM secondary air with low pressure drop and low sound levels.
- Maximum unit height dimension of 11 inches.
- Durable 22 gauge galvanized steel casing construction.
- Access to internal components.
- Standard inlet and discharge connections.
- Forward curved centrifugal type fan assemblies with three speed, thermally protected, permanent split capacitor type 120 or 277 volt fractional horsepower motors.
- Fan/motor assemblies are isolated from the casing using rubber isolators to minimize vibration transmission.
- Field adjustable fan air flow damper (between three speeds).
- Field adjustable P/E switch with pneumatic controls.
- Performance data based on tests conducted in accordance with ARI Standard 880-89.
- Averaging type velocity sensor and calibration chart for measuring primary air flow.
- All units equipped with pneumatic or electronic pressure independent controls.
- Insulation is 1/2" thick, 1 1/2 lb. dual density fiberglass with surface treated to prevent air erosion, UL listed and meets NFPA 90A requirements.
- Low leakage primary air damper design.
- Optional fan speed selector switch.
- Optional primary air controls enclosure.
- Optional secondary air sound baffle. Sound baffle is factory attached to secondary air inlet.
- Optional one or two row hot water coils (Model ASW). Coil is factory attached to primary air discharge.
- Optional one, two or three stage electric reheat coils (Model ASE). Coil is factory attached to primary air discharge, or shipped separately for field mounting.
- Optional secondary air filters, Class I (re-usable) and Class II (throw away).
- Optional non-fused fan disconnect switch.
- Optional foil coated insulation (Hospital, Laboratory, etc. applications).
- Optional ETL listing.

*Available Modules:*

- Basic control unit—Model ASF.
- Basic control unit with hot water coil—Model ASW.
- Basic control unit with electric coil—Model ASE.



**Typical Sequence of Operation**

**Central fan on — Day (occupied) operation.**

When the central system fan is "on", the intermittent fan unit operates as a standard throttling control unit for cooling loads. As the cooling load diminishes the control valve throttles to a minimum or closed position, the fan is energized by the P/E switch for pneumatic controls or an electric contactor for electronic controls to draw in warm plenum air.

**Central fan off — Night (unoccupied) operation.**

When the central system fan is "off" on a call for less cooling, the primary air supply valve closes. The unit fan is then turned on

and off by the P/E switch for pneumatic controls or an electric contactor for electronic controls on demands for heat and not heat respectively.

- CAUTION:**
1. For electronically controlled units, a minimum CFM value other than zero may cause the damper to drive open when the central system is off.
  2. The "ES" (morning warm-up) electronic option requires a minimum airflow other than zero for proper duct temperature sensing.

**PERFORMANCE DATA — Low Profile Intermittent Volume Fan Terminal Units ...**

**Motor Full Load Amp (FLA) Rating**

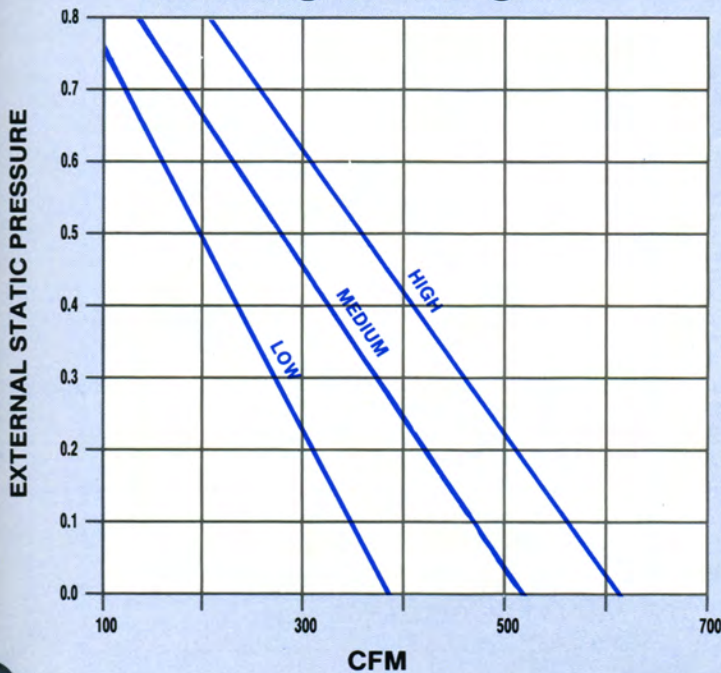
Fan Unit Model	Unit Size	Motor(s) H.P.	120 Volt Motors(s) FLA	277 Volt Motors(s) FLA
AS	L1	1 @ 1/6	2.0	.8
AS	L2	1 @ 1/4	3.2	1.2
AS	L3	2 @ 1/6	4.0	1.6
AS	L4	2 @ 1/4	6.4	2.4

**FAN CURVES — CFM vs External Static Pressure**

**Size L1**

1/6 H. P. Motor

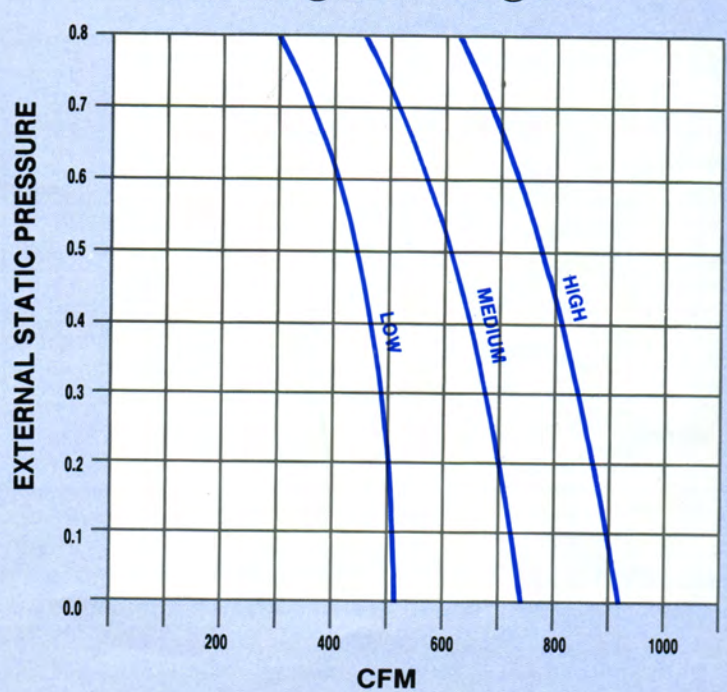
F.L.A.: 2.0A @ 120V .8A @ 277V



**Size L2**

1/4 H. P. Motor

F.L.A.. 3.2A @ 120V 1.2A @ 277V



- NOTES:**
1. Pressure drops due to heating coils are treated as external static pressures (Refer to coil sections of this catalog for additional information.)
  2. F.L.A. = Full Load Amps of motor.

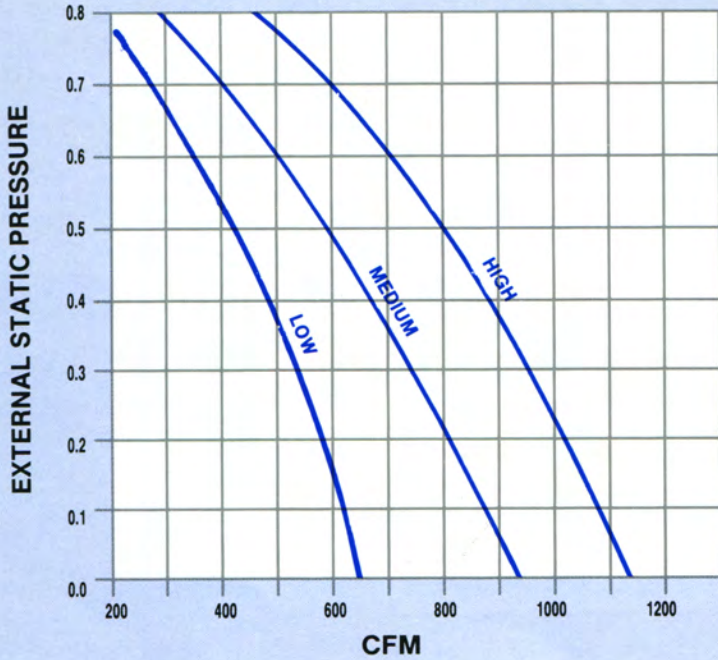


**FAN CURVES — CFM vs External Static Pressure**

**Size L3**

(2) 1/6 H. P. Motors

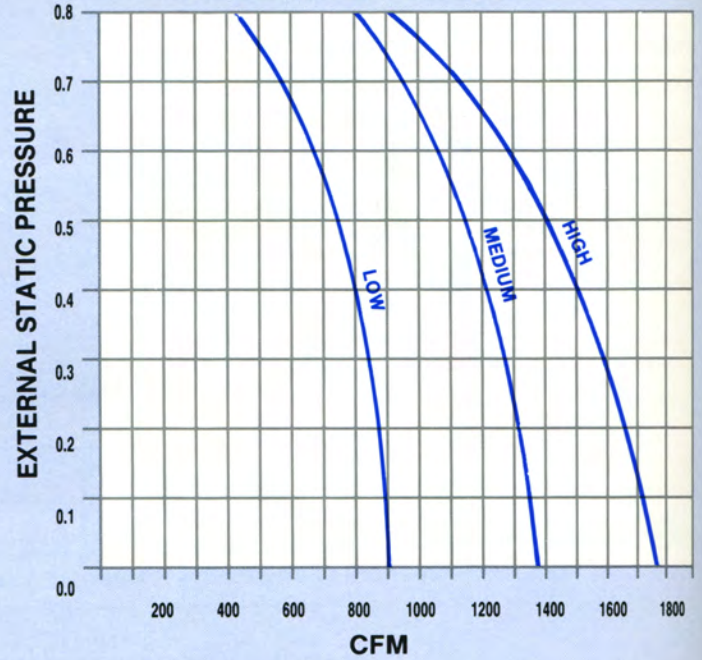
F.L.A.: 4.0A @ 120V 1.6A @ 277V



**Size L4**

(2) 1/4 H. P. Motors

F.L.A.: 6.4A @ 120V 2.4A @ 277V



- NOTES:** 1. Pressure drops due to heating coils are treated as external static pressures (Refer to coil sections of this catalog for additional information.)  
 2. F.L.A. = Full Load Amps of motor.

**SOUND PERFORMANCE DATA**

**Radiated Sound Data with and without Attached Sound Baffle (FAN ON)**

Fan Speed	ESP	Unit Size	CFM	With Sound Baffle	No Sound Baffle
				Radiated NC	Radiated NC
HI	.25	ASL1	460	22	25
MED	.25		400	20	23
LO	.25		300	18	20
HI	.25	ASL2	850	21	26
MED	.25		710	16	22
LO	.25		515	15	21
HI	.25	ASL3	950	30	31
MED	.25		750	21	23
LO	.25		580	21	22
HI	.25	ASL4	1640	22	30
MED	.25		1330	20	27
LO	.25		890	18	23

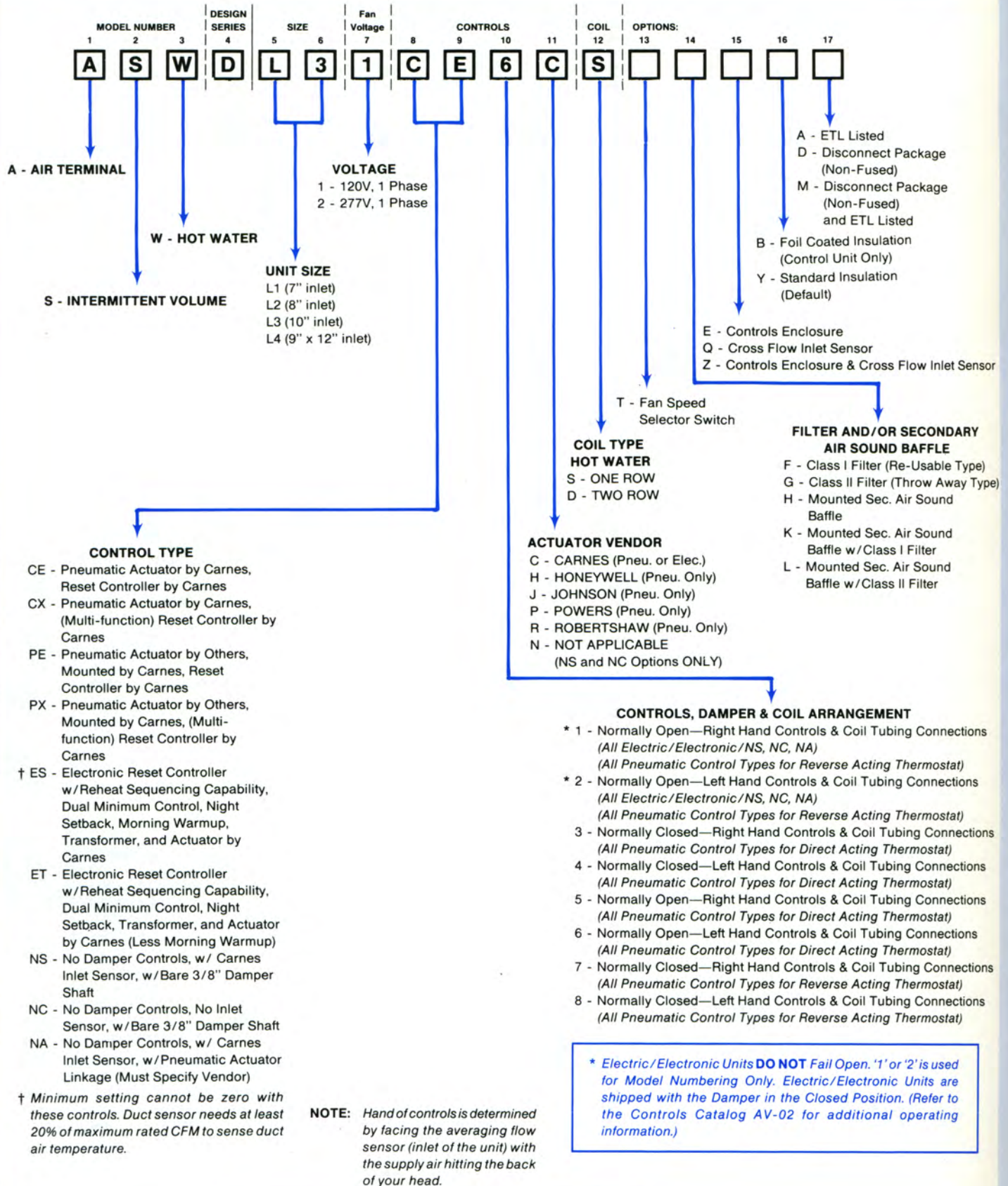
- NOTES:** 1. Performance data on this page is considered to be application data. Although this data is presented in a format that cannot be certified, it is based on testing in accordance with ARI Standard 880. Certified performance data is shown on page 71.  
 2. Secondary Air Sound Data is tested with the primary air damper closed.  
 3. External Static Pressure (ESP) is pressure due to the air flow adjustment damper, heating coils, and/or downstream ductwork.  
 4. The CFM indicated is the maximum attainable at the external static pressure (ESP) shown.

**NC LEVELS ARE CALCULATED IN ACCORDANCE WITH ARI 885-90. NC LEVELS ARE NOT WITHIN THE SCOPE OF ARI STANDARD 880 AND THEREFORE CANNOT BE CERTIFIED.**

Radiated NC levels are based on:

- a) Plenum/ceiling effect - 5/8" mineral fiber tile, 35 lb/ft<sup>3</sup>  
 - 3 foot plenum
- b) Space effect factor (5000 ft<sup>3</sup>) at 10 feet from outlet
- c) 10 db for room absorption

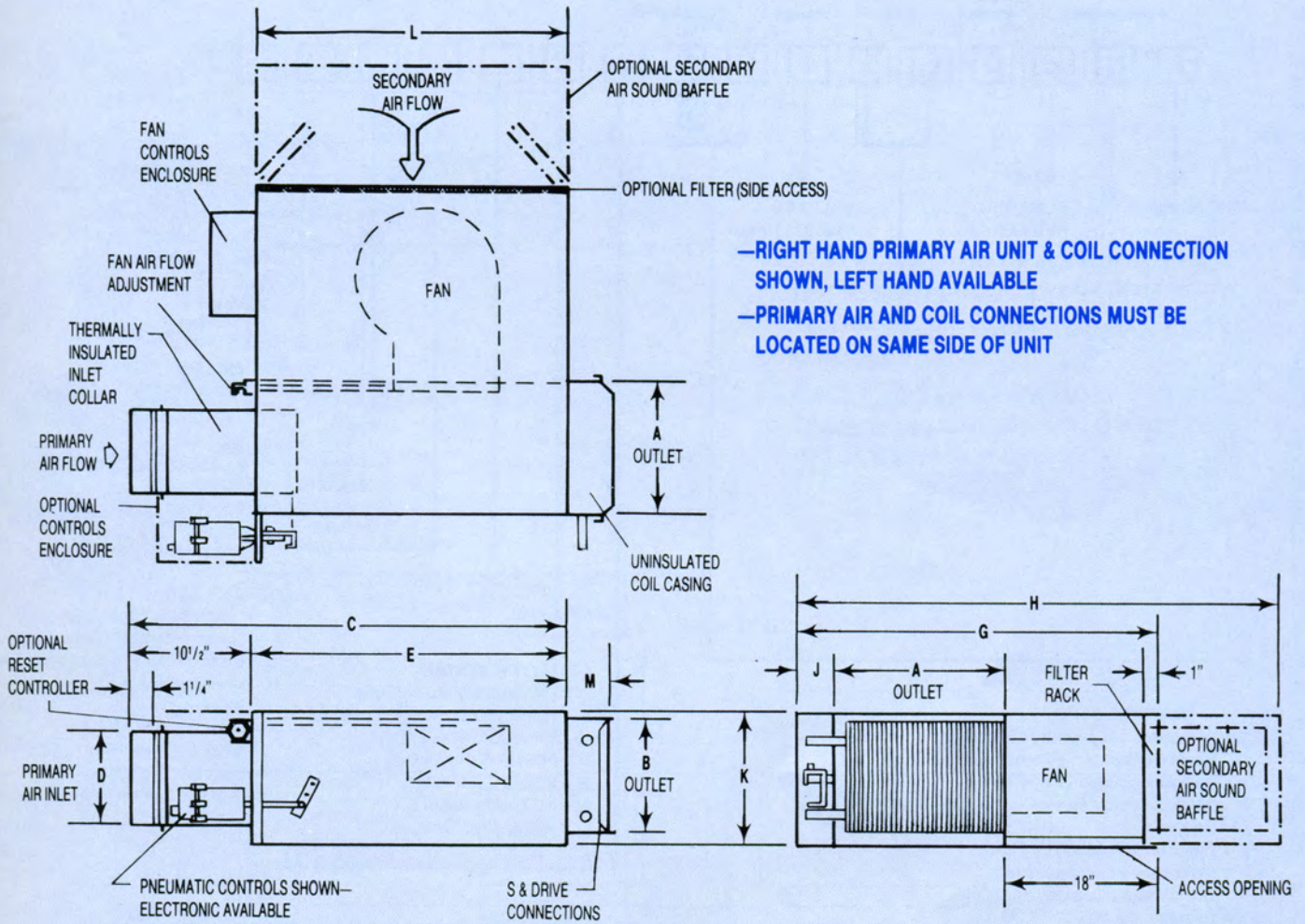




A Carnes Electronic Thermostat **must be ordered** with the electronic EC, ES, and ET Control Options.

\* Electric/Electronic Units **DO NOT** Fail Open. '1' or '2' is used for Model Numbering Only. Electric/Electronic Units are shipped with the Damper in the Closed Position. (Refer to the Controls Catalog AV-02 for additional operating information.)





**DIMENSIONS LISTED IN INCHES**

Unit Size	*Primary Nominal CFM	Secondary Nominal CFM @ .10" E.S.P.	Fan H.P.	S & Drive Outlet		Inlet		E	G	H	J	K	L	1 Row M	2 Row M
				A	B	C	D								
L1	700	580	1/6	14	10	38 3/4	6 7/8	28	35 1/2	49 1/2	3 1/2	11	28	3 1/8	4 1/2
L2	1000	925	1/4	14	10	38 3/4	7 7/8	28	35 1/2	49 1/2	3 1/2	11	28	3 1/8	4 1/2
L3	1500	1100	(2) 1/6	14	10	55 1/2	9 7/8	45	35 1/2	49 1/2	3 1/2	11	45	3 1/8	4 1/2
L4	2100	1775	(2) 1/4	20	10	55 1/2	9 x 12	45	41 1/2	55 1/2	3 1/2	11	45	3 1/8	4 1/2

\* Refer to "Primary Air Inlet Parameters" (page 6) when selecting MINIMUM CFM.