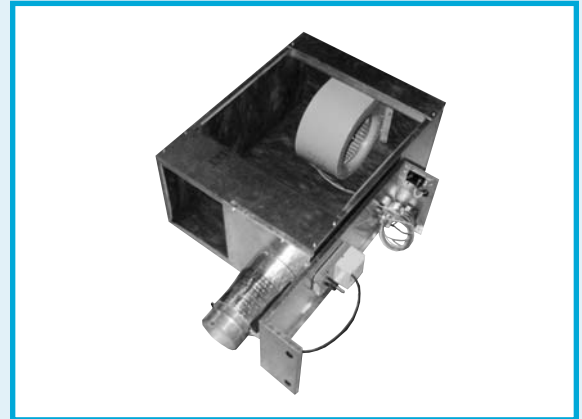


## FAN TERMINAL UNITS – Constant Volume (Series Flow), Standard Design

**Models** ACF w/o Coil  
ACW w/Hot Water Coil  
ACE w/Electric Coil

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.



### *Features Include:*

- Air flow capacities to 3700 CFM.
- Durable 22 gauge galvanized steel casing construction.
- Bottom access panel for internal components.
- Flange or slip and drive discharge connections.
- Forward curved centrifugal type fan assemblies with thermally protected, permanent split capacitor type 120 or 277 volt, single phase, fractional horsepower motors.
- Adjustable SCR fan speed control.
- Fan/motor assemblies are isolated from the casing using rubber isolators to minimize vibration transmission.
- Low leakage primary air damper design.
- Secondary air filter rack.
- Performance data based on tests conducted in accordance with ARI Standard 880-98.
- Air flow switch.
- All units are equipped with pressure independent pneumatic or electronic controls.
- Field adjustable P/E switch with pneumatic controls.
- Averaging type velocity sensor and calibration chart for measuring air flow through the primary air damper.
- Insulation is 1" thick, 1-1/2 lb. dual density fiberglass with surface treated to prevent air erosion, UL listed and meets NFPA 90A requirements.
- Damper controls and fan controls are located in one enclosure.
- ARI listed.
- Optional ETL listing.
- Optional secondary air sound baffle. Sound baffle is factory attached to secondary air inlet. (Contact Carnes)
- Optional one or two row hot water coils (Model ACW). Coil is factory attached to the unit discharge.
- Optional one, two or three stage electric reheat coils (Model ACE). Coil is factory attached to unit discharge or shipped separately for field mounting.
- Optional secondary air filters, Class I (re-usable) or Class II (throw away).
- Optional non-fused or fused fan disconnect switch.
- Optional foil coated insulation (Hospital, Laboratory, etc. applications).

### *Available Modules:*

- Basic control unit — **Model ACF.**
- Basic control unit with hot water coil — **Model ACW.**
- Basic control unit with electric coil — **Model ACE.**

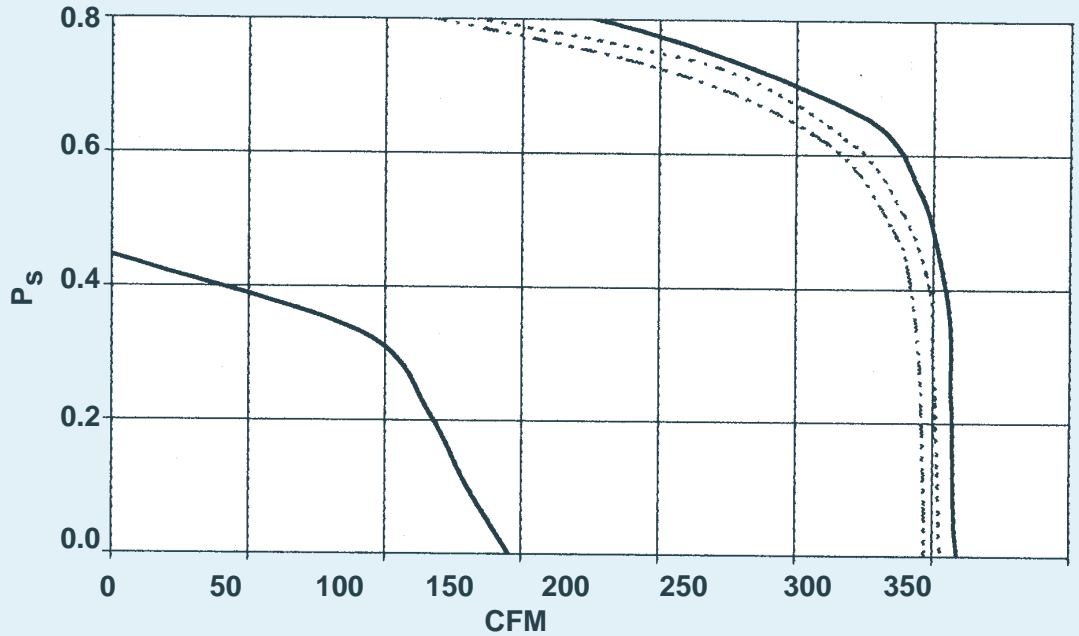


Foil Faced Insulation  
Available

## FAN CURVES CFM vs EXTERNAL STATIC PRESSURE

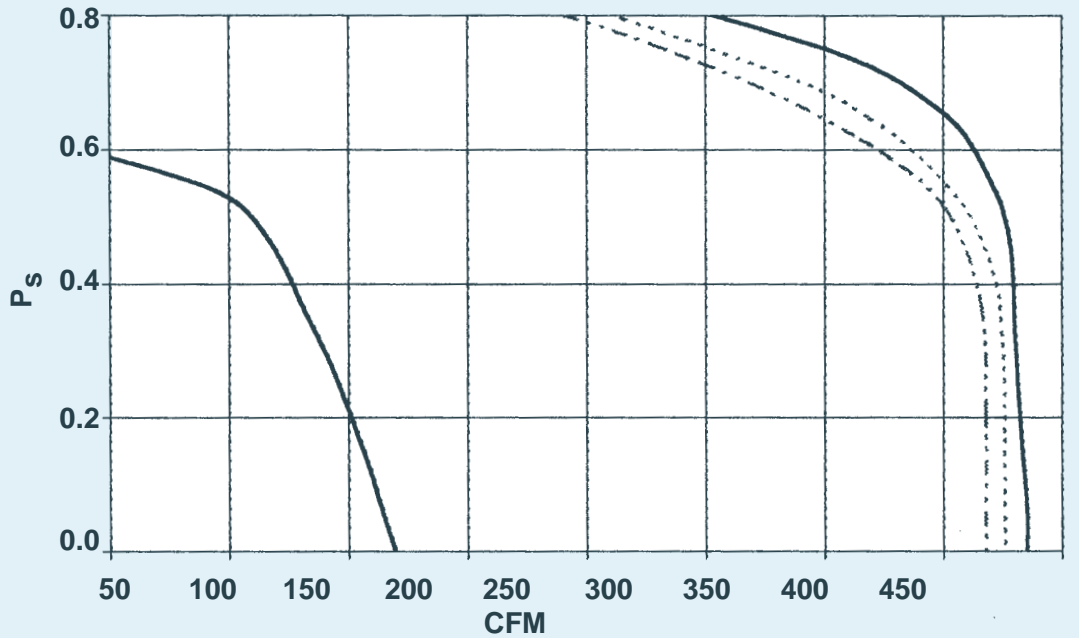
FAN POWERED UNITS

**FAN SIZE A — AC 05**  
**1/6 HP Motor**



— MAX.  
 — MIN.  
 - - - 1 ROW  
 - · - 2 ROW

**FAN SIZE B — AC 06**  
**1/6 HP Motor**

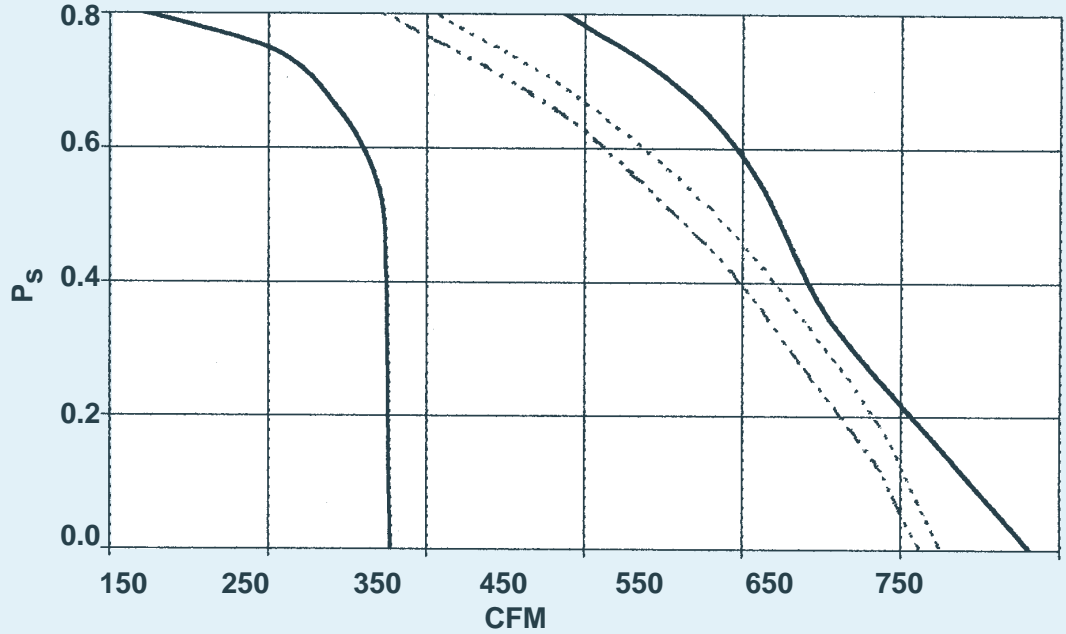


— MAX.  
 — MIN.  
 - - - 1 ROW  
 - · - 2 ROW

- NOTES:**
1. External static pressure (ESP) consists of down stream duct work, coils, flex duct, etc.
  2. Pressure drop due to heating coils are treated as external static pressure
  3. For proper operation, the downstream ESP must be at least 0.20" W.G.

## FAN CURVES CFM vs EXTERNAL STATIC PRESSURE

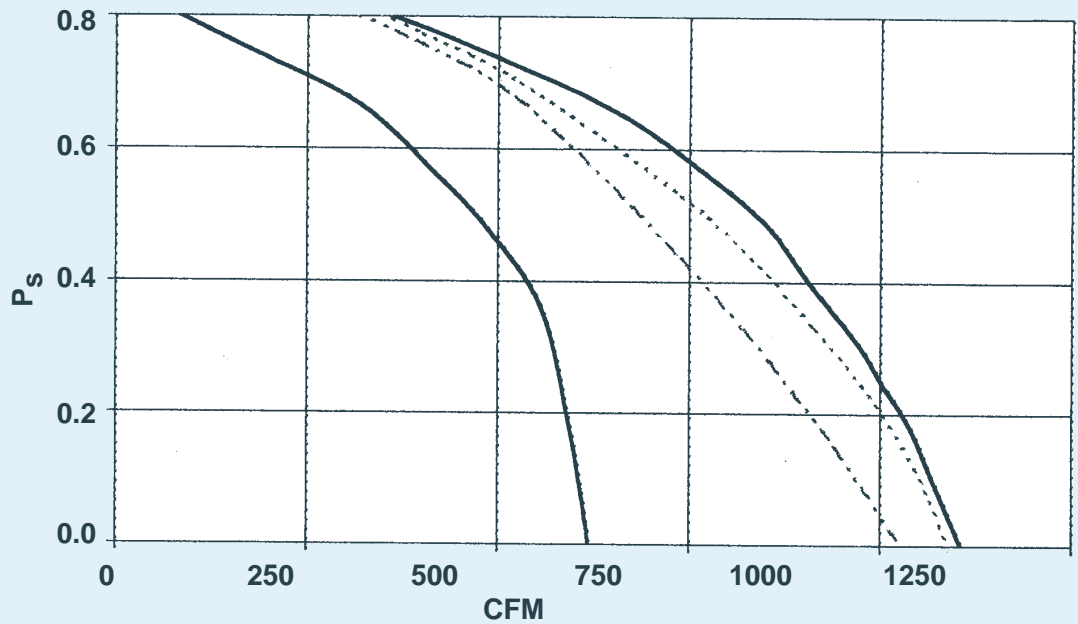
**FAN SIZE C — AC 07**  
1/6 HP Motor



— MAX.  
— MIN.  
- - - 1 ROW  
- · - 2 ROW

FAN POWERED UNITS

**FAN SIZE D — AC 08**  
1/4 HP Motor



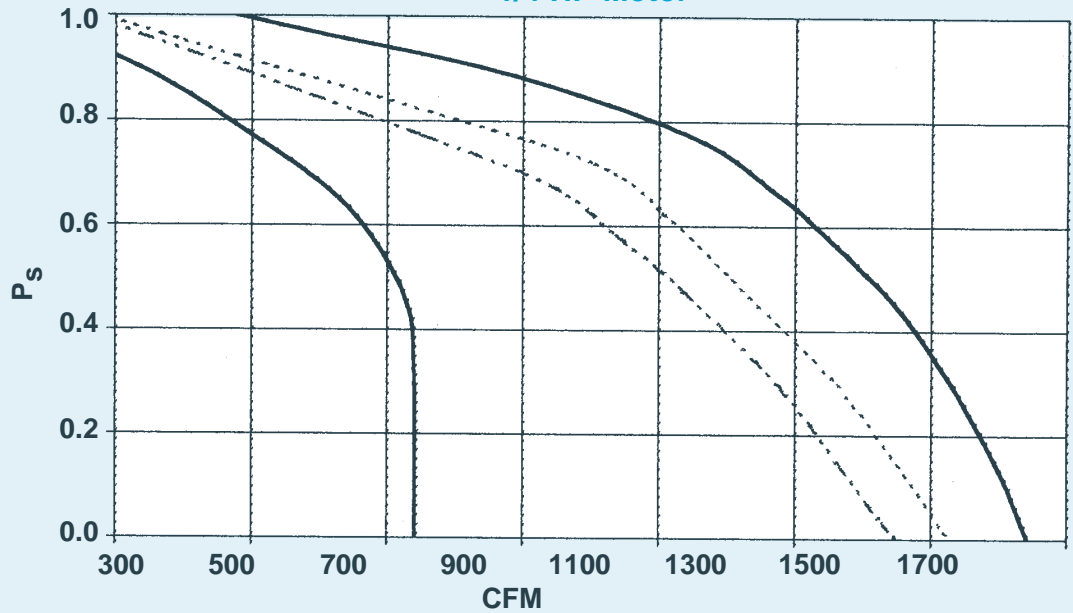
— MAX.  
— MIN.  
- - - 1 ROW  
- · - 2 ROW

- NOTES:**
1. External static pressure (ESP) consists of down stream duct work, coils, flex duct, etc.
  2. Pressure drop due to heating coils are treated as external static pressure
  3. For proper operation, the downstream ESP must be at least 0.20" W.G.

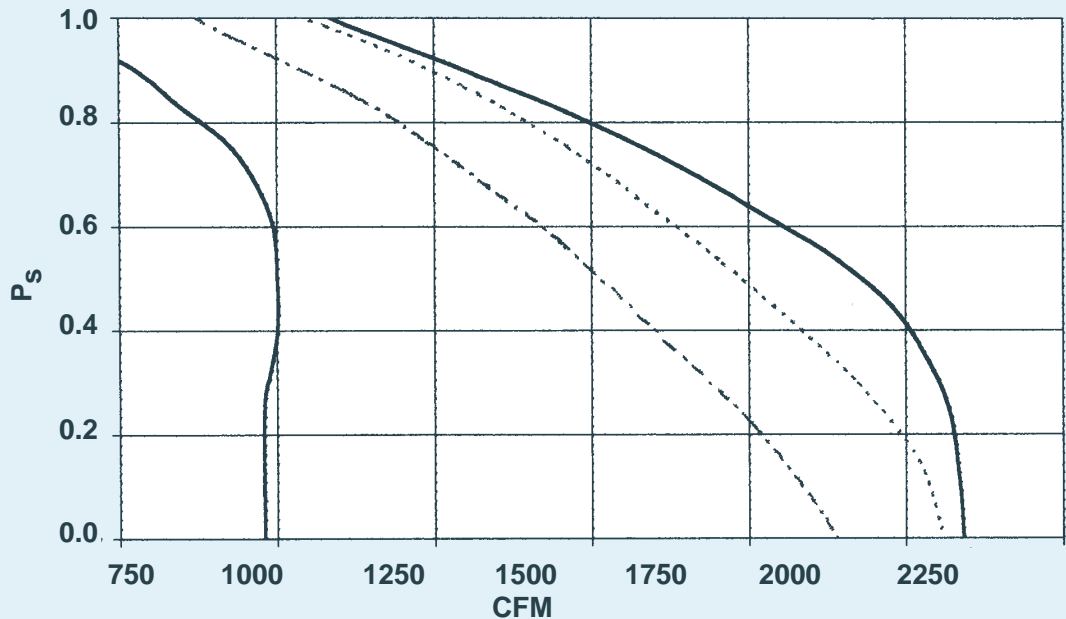
## FAN CURVES CFM vs EXTERNAL STATIC PRESSURE

FAN POWERED UNITS

**FAN SIZE E — AC 10**  
**1/4 HP Motor**



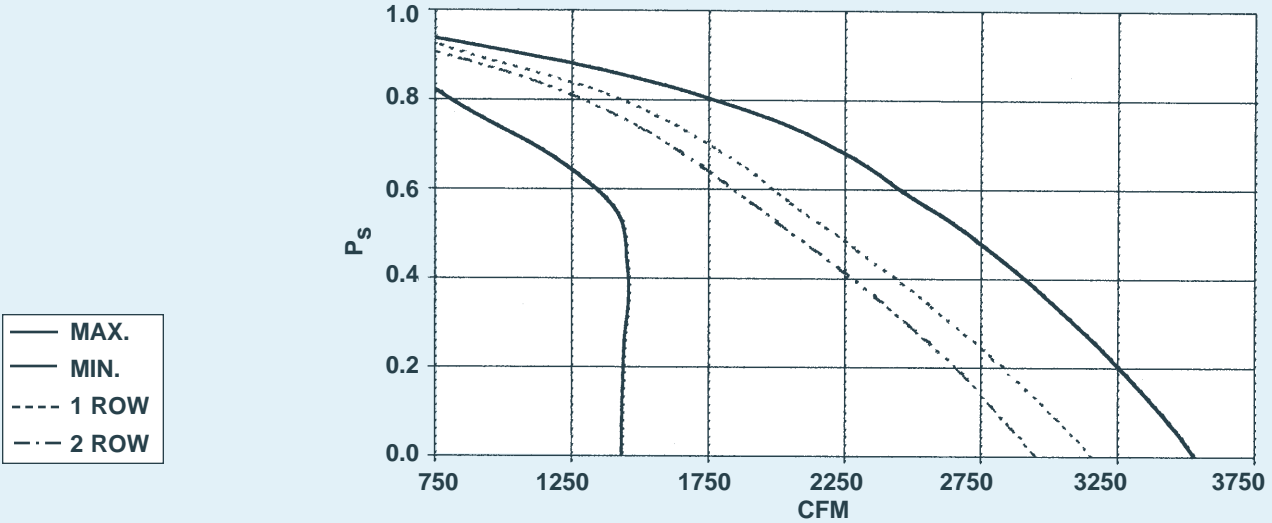
**FAN SIZE F — AC 12**  
**1/2 HP Motor**



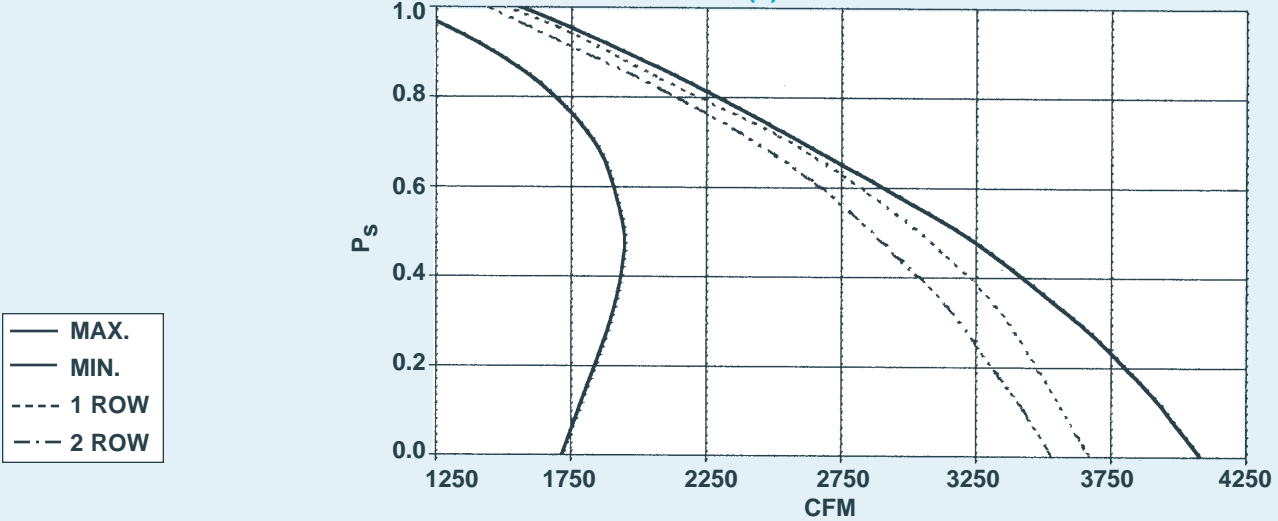
- NOTES:**
1. External static pressure (ESP) consists of down stream duct work, coils, flex duct, etc.
  2. Pressure drop due to heating coils are treated as external static pressure
  3. For proper operation, the downstream ESP must be at least 0.20" W.G.

## FAN CURVES CFM vs EXTERNAL STATIC PRESSURE

**FAN SIZE G — AC 14  
(2) 1/2 HP Motor**



**FAN SIZE H — AC 16  
(2) 1/2 HP Motor**



- NOTES:**
1. External static pressure (ESP) consists of down stream duct work, coils, flex duct, etc.
  2. Pressure drop due to heating coils are treated as external static pressure
  3. For proper operation, the downstream ESP must be at least 0.20" W.G.

FAN POWERED UNITS

**PERFORMANCE DATA – Constant Volume (Series Flow), Standard Design**

**Model AC\_H 05A**

(FAN ON — 100% Primary Air/Mixing/100% Secondary Air)

FAN POWERED UNITS

Primary/ Secondary CFM	Primary Air $\Delta$ Ps	Discharge Sound							Radiated Sound								
		Sound Power db Octave Band							Max. NC	Sound Power db Octave Band							Max. NC
		2	3	4	5	6	7	2		3	4	5	6	7			
300/0	.28	63	56	54	51	47	42	14	60	53	46	41	37	34	22		
	.50	63	56	54	51	47	42	14	61	56	47	43	38	35	24		
	1.00	64	57	54	52	48	43	15	62	57	48	44	40	37	25		
	1.50	66	59	56	53	50	44	18	63	57	50	46	43	40	26		
	3.00	68	60	59	55	52	47	20	63	60	53	49	47	44	29		
150/150	.50	59	52	52	49	46	42	13	58	50	44	41	36	32	19		
	1.00	60	53	53	50	47	43	14	59	51	45	42	39	36	20		
	1.50	60	54	53	51	48	43	14	59	52	45	43	41	40	20		
	3.00	62	56	55	51	48	43	17	59	53	46	46	46	47	21		
0/300	--	59	51	52	46	42	36	--	57	49	42	39	33	29	18		
200/0	.07	54	49	47	43	37	31	--	51	44	39	34	25	23	12		
	.50	55	49	48	44	38	34	--	56	48	41	37	31	26	17		
	1.00	57	51	50	46	40	35	10	56	51	39	40	36	32	18		
	1.50	59	52	51	48	41	36	13	56	51	46	42	41	39	20		
	3.00	62	55	54	50	45	39	17	57	54	48	46	46	47	22		
100/100	.50	51	47	46	41	36	31	--	53	45	40	36	31	26	13		
	1.00	52	47	47	42	37	32	--	52	45	41	37	35	32	14		
	1.50	53	48	47	43	36	32	--	52	45	42	39	39	38	15		
	3.00	54	49	48	43	38	34	--	52	45	43	43	46	46	16		
0/200	--	51	45	43	39	34	29	--	50	42	38	33	24	23	11		
100/0	.03	43	36	35	29	23	23	--	46	39	36	33	25	23	--		
	.50	46	40	39	32	25	25	--	46	40	36	33	28	25	--		
	1.00	49	42	42	34	26	25	--	44	41	38	34	34	32	11		
	1.50	50	42	42	35	28	26	--	44	42	39	37	38	38	12		
	3.00	51	43	45	38	33	29	--	44	43	41	42	46	46	16		
50/50	.50	45	36	36	30	25	25	--	46	39	36	31	26	25	--		
	1.00	45	37	36	30	25	25	--	46	39	36	33	34	32	--		
	1.50	45	38	36	30	25	26	--	44	39	37	36	39	39	10		
	3.00	45	38	38	31	29	29	--	46	39	37	41	47	53	20		
0/100	--	42	35	33	27	23	23	--	46	39	36	33	25	23	--		

- NOTES:**
1.  $\Delta$  Ps static pressure difference from inlet to discharge.
  2. The lowest value of  $\Delta$  Ps is the minimum pressure required to deliver CFM shown with primary damper in wide open position.
  3.  $\Delta$  Ps does not include hot water or electric coils.
  4. (--) indicates NC levels less than 10.

NC Levels are derived from tests conducted in accordance with ARI Standard 880-98 and are calculated in accordance with ARI Standard 885-98 as application data based on the following:

**Discharge NC levels are based on —**

- a) 5 foot rectangular 12" x 12" duct lined with 1" fiberglass insulation.
- b) 6 foot lined flex duct (8" diameter).
- c) Maximum of 300 CFM per outlet.
- d) Space effect factor (5000ft<sup>3</sup>) at 10 feet from outlet.
- e) End reflection.
- f) Environmental adjustment factor.

**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 (5000ft<sup>3</sup>) at 10 feet from source.
- c) Environmental adjustment factor.



ARI Standard 880

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**PERFORMANCE DATA – Constant Volume (Series Flow), Standard Design**

**Model AC\_H 06B**

(FAN ON — 100% Primary Air/Mixing/100% Secondary Air)

Primary/ Secondary CFM	Primary Air $\Delta$ Ps	Discharge Sound							Radiated Sound								
		Sound Power db Octave Band							Max. NC	Sound Power db Octave Band							Max. NC
		2	3	4	5	6	7	2		3	4	5	6	7			
430/0	.23	69	61	59	56	55	50	22	66	60	49	45	41	38	30		
	.50	67	60	58	56	55	51	19	68	62	50	47	43	42	32		
	1.00	68	62	59	56	56	52	20	68	63	52	48	43	42	33		
	1.50	70	64	61	58	57	53	23	68	64	54	49	45	44	34		
	3.00	72	66	63	60	59	56	26	69	65	57	53	50	50	35		
215/215	.50	65	59	58	55	54	51	20	61	56	47	44	40	39	24		
	1.00	66	59	58	56	55	51	22	62	56	48	45	41	41	24		
	1.50	66	59	58	56	55	51	22	62	57	49	46	44	43	25		
	3.00	67	61	59	57	57	53	23	63	58	52	50	48	49	27		
0/430	--	67	59	58	55	53	49	19	62	55	46	42	37	37	24		
270/0	.09	57	50	49	47	42	36	10	56	49	41	38	32	30	17		
	.50	59	52	51	48	43	38	13	58	52	43	41	39	37	19		
	1.00	60	54	53	50	46	41	14	60	54	46	42	38	37	22		
	1.50	62	55	54	51	47	42	17	60	56	49	44	42	41	24		
	3.00	63	57	55	52	50	44	18	60	58	53	49	48	49	27		
135/135	.50	55	50	51	47	43	38	--	57	49	42	39	34	33	18		
	1.00	56	50	51	47	43	39	--	57	50	44	40	37	37	18		
	1.50	57	50	51	48	44	39	10	57	50	45	42	40	41	19		
	3.00	58	51	52	49	45	40	11	57	51	46	45	46	47	20		
0/270	--	56	49	48	44	39	34	--	55	47	41	36	31	30	15		
145/0	.03	45	39	38	33	25	25	--	46	39	31	25	22	24	--		
	.50	49	42	42	37	29	25	--	48	43	37	33	28	27	10		
	1.00	50	44	44	39	32	26	--	49	46	42	37	35	36	15		
	1.50	51	46	45	40	32	26	--	49	48	44	40	39	40	18		
	3.00	52	48	47	42	35	29	--	49	49	47	45	46	47	21		
73/73	.50	45	40	40	33	26	25	--	47	41	37	30	25	27	10		
	1.00	45	41	41	34	28	25	--	47	41	39	34	33	33	12		
	1.50	46	41	41	35	28	26	--	47	42	39	38	38	39	12		
	3.00	48	42	43	36	32	28	--	48	43	42	43	46	50	17		
0/145	--	45	39	37	31	28	28	--	47	41	31	26	22	24	--		

FAN POWERED UNITS

- NOTES:**
1.  $\Delta$  Ps static pressure difference from inlet to discharge.
  2. The lowest value of  $\Delta$  Ps is the minimum pressure required to deliver CFM shown with primary damper in wide open position.
  3.  $\Delta$  Ps does not include hot water or electric coils.
  4. (--) indicates NC levels less than 10.

NC Levels are derived from tests conducted in accordance with ARI Standard 880-98 and are calculated in accordance with ARI Standard 885-98 as application data based on the following:

**Discharge NC levels are based on —**

- a) 5 foot rectangular 12" x 12" duct lined with 1" fiberglass insulation.
- b) 6 foot lined flex duct (8" diameter).
- c) Maximum of 300 CFM per outlet.
- d) Space effect factor (5000ft<sup>3</sup>) at 10 feet from outlet.
- e) End reflection.
- f) Environmental adjustment factor.

**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 (5000ft<sup>3</sup>) at 10 feet from source.
- c) Environmental adjustment factor.



ARI Standard 880

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**PERFORMANCE DATA – Constant Volume (Series Flow), Standard Design**

**Model AC\_H 07C**

(FAN ON — 100% Primary Air/Mixing/100% Secondary Air)

FAN POWERED UNITS

Primary/ Secondary CFM	Primary Air $\Delta$ Ps	Discharge Sound							Radiated Sound								
		Sound Power db Octave Band							Max. NC	Sound Power db Octave Band							Max. NC
		2	3	4	5	6	7	2		3	4	5	6	7			
630/0	.21	77	71	67	65	65	62	32	73	66	55	53	48	47	39		
	.50	77	71	68	65	66	64	32	74	69	57	55	50	48	40		
	1.00	79	72	69	66	67	65	35	74	69	59	55	51	49	40		
	1.50	80	73	70	67	67	66	36	76	71	60	56	51	50	43		
	3.00	81	74	71	68	68	66	37	76	71	62	59	54	53	43		
315/315	.50	77	70	67	66	65	63	32	72	66	55	54	49	48	37		
	1.00	77	70	67	67	65	63	32	72	66	56	54	49	48	37		
	1.50	77	70	67	67	66	64	32	72	67	57	54	50	49	37		
	3.00	77	70	67	67	66	65	32	72	68	59	56	52	52	38		
0/630	--	79	71	67	66	64	62	35	74	68	56	54	49	48	40		
480/0	.11	70	62	60	57	57	53	23	69	61	51	48	43	40	33		
	.50	70	63	61	57	57	54	23	69	63	52	49	44	42	33		
	1.00	71	65	62	59	58	56	24	68	64	54	49	45	43	34		
	1.50	73	66	63	60	60	58	27	70	64	56	52	48	46	35		
	3.00	75	68	65	61	61	59	30	69	66	59	56	52	51	36		
240/240	.50	69	62	61	58	58	55	26	65	60	50	47	43	41	29		
	1.00	69	62	61	58	58	55	26	66	61	51	48	45	43	30		
	1.50	69	62	61	58	58	55	26	66	61	53	49	46	45	30		
	3.00	69	63	61	58	58	56	26	66	61	55	53	50	50	30		
0/480	--	70	62	60	57	56	53	23	67	60	50	46	42	40	31		
320/0	.06	59	52	52	48	44	39	--	59	51	45	40	34	30	20		
	.50	61	54	53	49	46	44	11	60	53	46	42	38	35	22		
	1.00	63	56	55	52	49	45	14	61	55	49	45	41	39	23		
	1.50	64	57	56	52	50	47	15	61	58	51	47	44	44	27		
	3.00	65	60	57	54	52	48	17	62	60	56	53	50	49	31		
160/160	.50	58	52	52	49	46	42	11	58	51	45	41	37	35	19		
	1.00	58	53	52	49	46	42	11	59	52	47	43	40	39	21		
	1.50	59	53	53	49	47	43	13	59	53	48	45	42	43	22		
	3.00	60	53	54	50	48	43	14	59	54	49	48	48	50	23		
0/320	--	59	52	52	47	44	39	--	57	50	46	39	34	32	20		

- NOTES:**
1.  $\Delta$  Ps static pressure difference from inlet to discharge.
  2. The lowest value of  $\Delta$  Ps is the minimum pressure required to deliver CFM shown with primary damper in wide open position.
  3.  $\Delta$  Ps does not include hot water or electric coils.
  4. (--) indicates NC levels less than 10.

NC Levels are derived from tests conducted in accordance with ARI Standard 880-98 and are calculated in accordance with ARI Standard 885-98 as application data based on the following:

**Discharge NC levels are based on —**

- a) 5 foot rectangular 12" x 12" duct lined with 1" fiberglass insulation.
- b) 6 foot lined flex duct (8" diameter).
- c) Maximum of 300 CFM per outlet.
- d) Space effect factor (5000ft<sup>3</sup>) at 10 feet from outlet.
- e) End reflection.
- f) Environmental adjustment factor.

**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 (5000ft<sup>3</sup>) at 10 feet from source.
- c) Environmental adjustment factor.



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**PERFORMANCE DATA – Constant Volume (Series Flow), Standard Design**

**Model AC\_H 08D**

(FAN ON — 100% Primary Air/Mixing/100% Secondary Air)

Primary/ Secondary CFM	Primary Air $\Delta$ Ps	Discharge Sound							Radiated Sound								
		Sound Power db							Max. NC	Sound Power db							Max. NC
		Octave Band								Octave Band							
2	3	4	5	6	7	2	3	4	5	6	7						
995/0	.20	76	73	71	72	71	69	32	71	69	62	57	51	49	40		
	.50	78	75	72	72	71	69	34	74	71	63	58	51	49	42		
	1.00	78	75	72	72	71	69	36	75	73	64	58	52	50	44		
	1.50	82	77	74	73	72	70	36	75	74	65	59	53	51	46		
	3.00	82	78	75	73	72	70	37	77	75	66	61	55	53	47		
498/498	.50	73	70	69	69	68	66	30	69	67	59	54	47	46	37		
	1.00	74	71	69	70	68	67	30	69	67	59	54	48	47	37		
	1.50	76	72	70	70	68	67	31	70	68	60	55	49	48	38		
	3.00	77	73	70	70	69	67	33	71	69	62	58	52	52	40		
0/995	--	72	69	66	67	66	63	27	67	65	56	52	46	45	35		
800/0	.14	69	65	64	65	63	60	24	64	62	57	52	46	43	32		
	.50	73	70	67	67	65	62	28	69	66	58	52	46	43	36		
	1.00	74	70	67	67	65	62	28	70	68	60	54	47	44	38		
	1.50	75	71	68	67	66	63	29	71	69	61	55	49	46	40		
	3.00	77	73	69	68	67	65	31	73	71	64	59	52	51	42		
400/400	.50	70	65	64	64	62	60	24	65	61	55	49	43	42	30		
	1.00	71	66	64	65	63	61	25	65	62	56	50	44	43	31		
	1.50	71	66	64	65	63	61	25	65	63	57	51	46	45	33		
	3.00	72	67	65	65	63	61	26	67	64	59	55	50	50	34		
0/800	--	67	64	63	62	61	58	22	64	59	53	47	42	41	28		
600/0	.08	62	57	58	58	55	51	15	58	56	52	46	39	34	26		
	.50	68	63	61	60	57	54	21	64	59	53	47	40	36	28		
	1.00	69	64	61	61	59	55	22	65	63	55	49	42	39	33		
	1.50	70	66	63	62	60	57	24	67	63	57	51	45	42	33		
	3.00	72	68	64	63	61	57	27	68	66	61	56	50	49	36		
300/300	.50	63	59	58	58	56	53	17	59	56	50	44	38	35	24		
	1.00	64	59	59	58	56	53	17	60	57	51	45	40	38	25		
	1.50	65	61	59	58	56	53	18	60	57	53	48	43	41	27		
	3.00	66	62	60	59	57	54	19	62	60	55	53	49	48	30		
0/600	--	62	57	57	56	54	51	15	59	54	49	43	36	34	23		

- NOTES:
1.  $\Delta$  Ps static pressure difference from inlet to discharge.
  2. The lowest value of  $\Delta$  Ps is the minimum pressure required to deliver CFM shown with primary damper in wide open position.
  3.  $\Delta$  Ps does not include hot water or electric coils.
  4. (--) indicates NC levels less than 10.

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**Discharge NC levels are based on —**

- a) 5 foot rectangular 12" x 12" duct lined with 1" fiberglass insulation.
- b) 6 foot lined flex duct (8" diameter).
- c) Maximum of 300 CFM per outlet.
- d) Space effect factor (5000ft<sup>3</sup>) at 10 feet from outlet.
- e) End reflection.
- f) Environmental adjustment factor.

**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 (5000ft<sup>3</sup>) at 10 feet from source.
- c) Environmental adjustment factor.



ARI Standard 880

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**PERFORMANCE DATA – Constant Volume (Series Flow), Standard Design**

**Model AC\_H 10E**

(FAN ON — 100% Primary Air/Mixing/100% Secondary Air)

FAN POWERED UNITS

Primary/ Secondary CFM	Primary Air $\Delta$ Ps	Discharge Sound							Radiated Sound								
		Sound Power db							Max. NC	Sound Power db							Max. NC
		Octave Band								Octave Band							
2	3	4	5	6	7	2	3	4	5	6	7						
1550/0	.17	76	72	72	71	68	68	31	72	70	62	57	54	53	41		
	.50	77	73	72	73	70	70	33	74	71	62	59	55	54	42		
	1.00	77	73	72	74	71	71	34	75	71	63	59	56	54	42		
	1.50	78	73	73	74	72	72	35	76	72	64	60	57	56	43		
	3.00	79	75	73	74	73	73	36	79	75	67	63	59	57	47		
775/775	.50	75	71	71	72	68	68	31	71	67	60	57	53	52	37		
	1.00	75	71	71	72	68	68	31	71	67	60	57	53	52	37		
	1.50	75	71	71	72	69	69	32	72	68	61	58	54	53	38		
	3.00	75	71	71	72	69	69	32	73	70	54	61	57	55	41		
0/1550	--	73	70	70	70	66	66	30	70	68	59	56	53	51	38		
1300/0	.12	72	68	68	67	64	64	28	69	65	58	54	50	48	35		
	.50	73	69	69	70	66	67	30	71	67	59	56	51	50	37		
	1.00	73	69	70	71	67	68	31	72	68	60	57	53	51	38		
	1.50	75	70	70	71	68	68	31	73	69	61	58	54	52	40		
	3.00	77	71	71	72	69	69	32	76	72	65	61	57	55	43		
650/650	.50	71	67	68	68	65	65	29	68	64	57	54	50	48	34		
	1.00	71	67	68	68	65	65	29	69	65	58	55	51	49	35		
	1.50	71	67	69	68	65	65	29	68	65	59	55	52	49	35		
	3.00	72	67	69	68	65	65	29	69	67	63	59	55	52	38		
0/1300	--	68	65	67	65	63	62	26	67	64	56	53	50	47	34		
1000/0	.07	65	62	63	61	59	57	21	64	59	53	49	45	42	28		
	.50	68	63	65	64	61	61	25	66	61	55	51	48	45	30		
	1.00	69	64	65	66	62	62	26	67	63	57	53	49	47	33		
	1.50	69	64	66	66	63	63	27	68	64	59	55	50	48	34		
	3.00	71	67	67	67	64	64	28	72	69	63	59	55	53	40		
500/500	.50	66	62	64	63	60	59	23	64	59	54	50	46	43	28		
	1.00	66	62	64	63	60	59	23	65	60	55	51	47	44	30		
	1.50	66	62	64	63	60	59	23	65	62	57	53	49	46	32		
	3.00	66	63	65	64	60	60	24	65	63	61	58	53	50	36		
0/1000	--	65	61	62	61	58	56	20	63	58	54	49	45	42	28		

- NOTES:**
1.  $\Delta$  Ps static pressure difference from inlet to discharge.
  2. The lowest value of  $\Delta$  Ps is the minimum pressure required to deliver CFM shown with primary damper in wide open position.
  3.  $\Delta$  Ps does not include hot water or electric coils.
  4. (--) indicates NC levels less than 10.

NC Levels are derived from tests conducted in accordance with ARI Standard 880-98 and are calculated in accordance with ARI Standard 885-98 as application data based on the following:

**Discharge NC levels are based on —**

- a) 5 foot rectangular 12" x 12" duct lined with 1" fiberglass insulation.
- b) 6 foot lined flex duct (8" diameter).
- c) Maximum of 300 CFM per outlet.
- d) Space effect factor (5000ft<sup>3</sup>) at 10 feet from outlet.
- e) End reflection.
- f) Environmental adjustment factor.

**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 (5000ft<sup>3</sup>) at 10 feet from source.
- c) Environmental adjustment factor.



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**PERFORMANCE DATA – Constant Volume (Series Flow), Standard Design**

**Model AC\_H 12F**

(FAN ON — 100% Primary Air/Mixing/100% Secondary Air)

Primary/ Secondary CFM	Primary Air $\Delta$ Ps	Discharge Sound							Radiated Sound								
		Sound Power db							Max. NC	Sound Power db							Max. NC
		Octave Band								Octave Band							
2	3	4	5	6	7	2	3	4	5	6	7	NC					
2050/0	.15	81	78	76	77	74	75	38	76	75	65	60	57	56	47		
	.50	81	78	77	78	76	76	39	76	75	65	61	57	57	47		
	1.00	82	78	77	78	76	76	39	76	75	66	62	58	57	47		
	1.50	83	79	78	79	78	77	40	78	77	67	66	60	58	49		
	3.00	84	81	78	80	78	78	41	81	80	71	67	63	60	53		
1025/1025	.50	79	76	75	77	74	74	37	72	73	63	60	56	55	44		
	1.00	80	77	75	77	74	75	38	74	73	64	61	56	55	44		
	1.50	80	78	76	78	75	75	38	74	74	64	61	57	56	46		
	3.00	81	78	76	78	75	75	38	76	76	67	64	59	57	48		
0/2050	--	79	77	74	76	73	72	36	74	74	63	59	55	54	46		
1500/0	.09	71	67	67	66	62	63	27	67	65	56	52	47	46	35		
	.50	72	67	68	68	64	65	29	68	66	58	55	49	47	36		
	1.00	75	70	70	71	67	67	30	71	69	61	57	52	50	40		
	1.50	77	71	71	71	68	69	32	73	71	63	59	54	51	42		
	3.00	78	73	72	72	69	69	32	76	75	68	64	58	55	47		
750/750	.50	74	71	71	71	67	68	29	68	66	56	53	48	46	36		
	1.00	74	71	71	71	67	68	30	69	67	58	54	49	48	37		
	1.50	75	71	71	71	67	68	30	69	68	60	55	51	49	38		
	3.00	75	72	72	72	69	69	30	69	69	63	60	55	53	40		
0/1500	--	75	72	71	70	68	68	27	69	66	57	52	48	47	36		
1100/0	.05	64	60	61	59	56	55	19	62	59	51	46	42	40	28		
	.50	67	62	64	64	60	60	24	64	62	54	50	46	44	31		
	1.00	70	64	65	64	61	61	25	66	65	57	53	48	46	35		
	1.50	71	65	66	65	62	62	26	68	67	59	57	51	48	37		
	3.00	74	68	68	67	63	64	28	71	71	65	61	56	53	42		
550/550	.50	66	61	62	61	57	57	21	64	62	54	49	44	42	31		
	1.00	66	62	62	61	58	58	22	65	63	56	52	47	45	33		
	1.50	66	61	62	61	57	57	21	67	65	59	55	50	47	35		
	3.00	67	62	64	62	59	59	23	69	69	64	60	55	52	40		
0/1100	--	65	61	61	60	56	56	20	63	59	52	46	41	40	28		

- NOTES:**
1.  $\Delta$  Ps static pressure difference from inlet to discharge.
  2. The lowest value of  $\Delta$  Ps is the minimum pressure required to deliver CFM shown with primary damper in wide open position.
  3.  $\Delta$  Ps does not include hot water or electric coils.
  4. (--) indicates NC levels less than 10.

NC Levels are derived from tests conducted in accordance with ARI Standard 880-98 and are calculated in accordance with ARI Standard 885-98 as application data based on the following:

**Discharge NC levels are based on —**

- a) 5 foot rectangular 12" x 12" duct lined with 1" fiberglass insulation.
- b) 6 foot lined flex duct (8" diameter).
- c) Maximum of 300 CFM per outlet.
- d) Space effect factor (5000ft<sup>3</sup>) at 10 feet from outlet.
- e) End reflection.
- f) Environmental adjustment factor.

**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 (5000ft<sup>3</sup>) at 10 feet from source.
- c) Environmental adjustment factor.



ARI Standard 880

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**PERFORMANCE DATA – Constant Volume (Series Flow), Standard Design**

**Model AC\_H 14G**

(FAN ON — 100% Primary Air/Mixing/100% Secondary Air)

FAN POWERED UNITS

Primary/ Secondary CFM	Primary Air $\Delta$ Ps	Discharge Sound							Radiated Sound								
		Sound Power db							Max. NC	Sound Power db							Max. NC
		Octave Band								Octave Band							
2	3	4	5	6	7	NC	2	3	4	5	6	7	NC				
3150/0	.28	82	80	78	80	77	76	40	82	76	68	66	62	60	50		
	.50	84	83	80	82	80	79	43	84	78	70	68	64	63	53		
	1.00	86	85	81	82	80	80	46	87	80	71	68	65	63	57		
	1.50	87	86	81	83	81	81	47	88	81	72	69	66	64	58		
	3.00	89	88	82	84	84	84	49	90	85	76	72	68	67	61		
1575/1575	.50	79	79	76	79	76	76	39	80	74	66	64	61	59	48		
	1.00	81	80	77	79	77	76	40	81	75	67	65	61	60	49		
	1.50	81	80	77	79	78	77	40	82	76	68	66	62	60	50		
	3.00	82	81	78	80	79	78	41	83	77	71	67	63	61	52		
0/3150	--	77	75	74	76	73	72	35	84	78	70	67	63	62	53		
2400/0	.13	82	78	75	76	74	73	37	77	72	64	62	60	57	44		
	.50	82	80	77	78	77	76	40	80	76	66	63	61	58	48		
	1.00	84	82	78	79	79	77	42	79	76	68	64	61	59	48		
	1.50	86	83	78	80	80	79	43	81	77	69	65	62	59	49		
	3.00	89	85	79	81	82	80	46	84	79	72	66	63	60	53		
1200/1200	.50	79	77	75	76	75	74	37	76	71	64	61	58	56	43		
	1.00	79	77	75	77	75	74	37	76	73	64	61	59	57	44		
	1.50	80	77	75	77	75	74	37	76	73	65	62	59	57	44		
	3.00	81	77	75	77	75	74	37	77	73	68	64	60	58	44		
0/2400	--	76	74	72	74	71	70	33	74	70	61	59	58	56	41		
1800/0	.19	74	71	71	70	69	67	30	71	66	60	57	55	52	36		
	.50	77	75	73	75	73	71	34	76	70	63	59	56	53	43		
	1.00	78	77	73	75	74	72	36	77	72	64	60	57	54	44		
	1.50	79	77	73	75	74	72	36	78	73	65	61	58	55	45		
	3.00	80	77	75	77	75	74	37	80	76	69	64	59	56	48		
900/900	.50	73	71	71	72	70	69	32	72	67	60	58	55	52	37		
	1.00	77	74	71	72	71	69	33	73	67	62	58	55	52	39		
	1.50	77	74	71	72	71	69	33	73	67	62	59	55	52	39		
	3.00	78	74	72	73	71	70	33	74	69	64	62	56	53	40		
0/1800	--	72	72	70	71	69	67	30	71	65	59	57	55	52	36		

- NOTES:
1.  $\Delta$  Ps static pressure difference from inlet to discharge.
  2. The lowest value of  $\Delta$  Ps is the minimum pressure required to deliver CFM shown with primary damper in wide open position.
  3.  $\Delta$  Ps does not include hot water or electric coils.
  4. (--) indicates NC levels less than 10.

NC Levels are derived from tests conducted in accordance with ARI Standard 880-98 and are calculated in accordance with ARI Standard 885-98 as application data based on the following:

**Discharge NC levels are based on —**

- a) 5 foot rectangular 12" x 12" duct lined with 1" fiberglass insulation.
- b) 6 foot lined flex duct (8" diameter).
- c) Maximum of 300 CFM per outlet.
- d) Space effect factor (5000ft<sup>3</sup>) at 10 feet from outlet.
- e) End reflection.
- f) Environmental adjustment factor.

**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 (5000ft<sup>3</sup>) at 10 feet from source.
- c) Environmental adjustment factor.



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**PERFORMANCE DATA – Constant Volume (Series Flow), Standard Design**

**Model AC\_H 16H**

(FAN ON — 100% Primary Air/Mixing/100% Secondary Air)

Primary/ Secondary CFM	Primary Air $\Delta$ Ps	Discharge Sound							Radiated Sound								
		Sound Power db							Max. NC	Sound Power db							Max. NC
		Octave Band								Octave Band							
2	3	4	5	6	7	2	3	4	5	6	7	NC					
3700/0	.40	82	81	79	81	78	77	41	83	78	70	67	64	61	52		
	.50	87	85	80	81	79	78	46	83	81	71	68	64	63	54		
	1.00	87	86	81	83	80	80	47	86	84	72	68	65	63	58		
	1.50	88	86	81	83	80	80	47	87	85	73	69	65	64	59		
	3.00	89	88	83	84	82	81	49	90	87	77	72	67	66	61		
1850/1850	.50	83	82	79	81	77	77	42	80	78	68	66	62	61	50		
	1.00	83	82	79	81	78	77	42	82	78	69	66	62	61	50		
	1.50	83	83	79	81	78	77	43	82	79	70	67	63	62	52		
	3.00	85	84	80	81	78	78	44	82	80	73	68	64	63	53		
0/3700	--	81	79	77	79	76	75	38	78	75	66	64	61	59	47		
2800/0	.26	71	76	69	67	64	62	35	75	72	64	59	55	53	43		
	.50	76	77	72	71	68	66	36	77	75	66	61	57	55	47		
	1.00	78	77	73	73	70	68	36	80	76	68	63	59	56	48		
	1.50	80	79	74	74	71	69	38	81	78	70	64	60	57	50		
	3.00	85	84	77	77	75	72	44	85	82	74	68	63	60	55		
1400/1400	.50	73	73	71	70	67	65	31	74	71	63	59	56	54	42		
	1.00	77	74	72	71	68	66	33	76	73	64	60	57	55	44		
	1.50	77	75	72	71	68	67	34	77	74	65	61	58	56	46		
	3.00	80	76	73	72	70	68	35	78	75	69	65	59	57	47		
0/2800	--	71	70	70	70	67	65	29	77	71	62	60	57	55	44		
1800/0	.16	69	72	69	67	64	62	30	67	64	60	55	50	49	35		
	.50	74	73	72	71	68	67	31	75	70	62	57	53	51	41		
	1.00	77	75	73	72	69	68	34	76	72	64	58	54	52	43		
	1.50	78	76	74	73	70	69	35	77	73	65	60	55	53	44		
	3.00	80	78	75	74	72	70	37	79	76	70	65	58	55	48		
900/900	.50	74	70	70	70	66	65	29	71	65	61	55	52	51	36		
	1.00	76	71	71	70	66	65	29	72	66	61	56	52	51	37		
	1.50	76	72	71	70	67	65	30	72	67	62	57	53	52	37		
	3.00	76	73	71	70	67	66	31	73	68	63	59	55	53	39		
0/1800	--	75	70	71	70	67	66	30	70	65	59	56	53	51	35		

FAN POWERED UNITS

- NOTES:
1.  $\Delta$  Ps static pressure difference from inlet to discharge.
  2. The lowest value of  $\Delta$  Ps is the minimum pressure required to deliver CFM shown with primary damper in wide open position.
  3.  $\Delta$  Ps does not include hot water or electric coils.
  4. (--) indicates NC levels less than 10.

NC Levels are derived from tests conducted in accordance with ARI Standard 880-98 and are calculated in accordance with ARI Standard 885-98 as application data based on the following:

**Discharge NC levels are based on —**

- a) 5 foot rectangular 12" x 12" duct lined with 1" fiberglass insulation.
- b) 6 foot lined flex duct (8" diameter).
- c) Maximum of 300 CFM per outlet.
- d) Space effect factor (5000ft<sup>3</sup>) at 10 feet from outlet.
- e) End reflection.
- f) Environmental adjustment factor.

**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 (5000ft<sup>3</sup>) at 10 feet from source.
- c) Environmental adjustment factor.

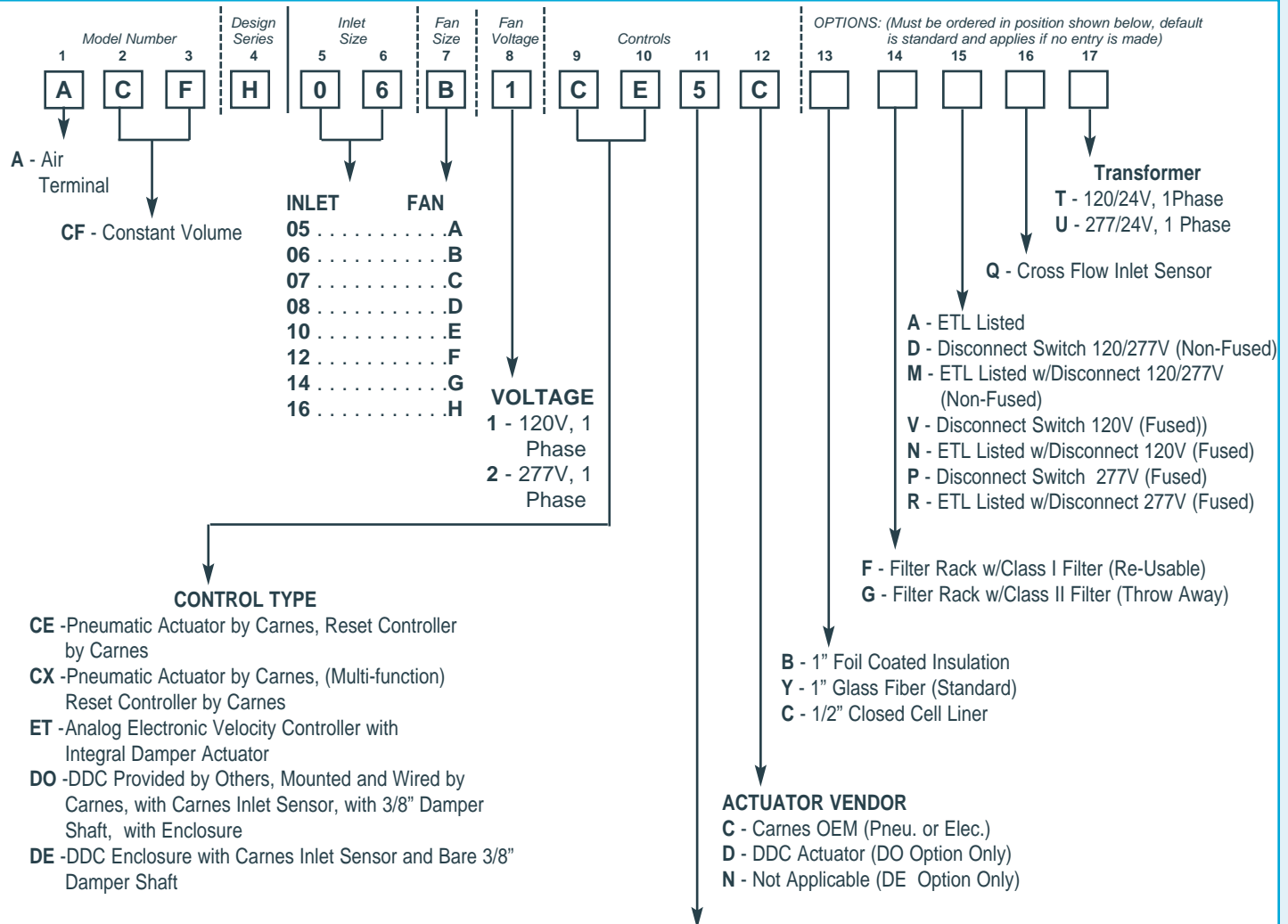


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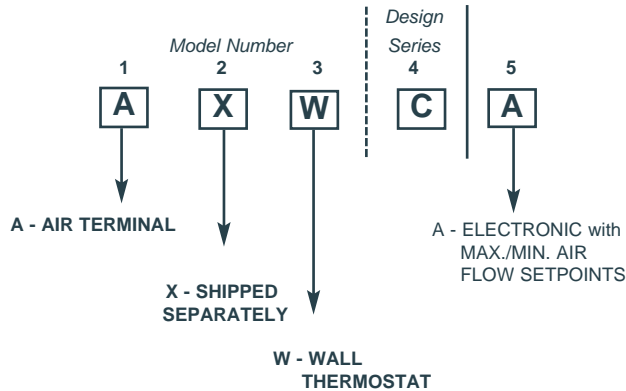
# MODEL NUMBERING – Constant Volume (Series Flow), Standard Design

FAN POWERED UNITS



**NOTE:** Hand of controls is determined by facing the averaging flow sensor (inlet of the unit) with the supply air hitting the back of your head.

## Electronic Thermostat



A Carnes Electronic Thermostat **must be ordered** with the Electronic ET Control Option.

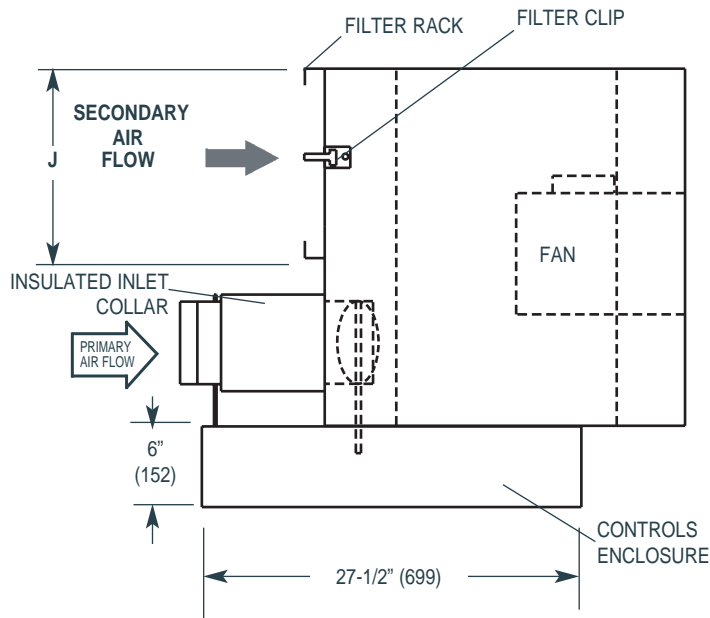
## CONTROLS AND DAMPER ARRANGEMENT

- \*1 - Normally Open - Right Hand Controls (Electronic/DO, DE, ET)  
(All Pneumatic Control Types for Reverse Acting Thermostat)
- \*2 - Normally Open - Left Hand Controls (Electronic/DO, DE, ET)  
(All Pneumatic Control Types for Reverse Acting Thermostat)
- 3 - Normally Closed - Right Hand Controls (All Pneumatic Control Types for Direct Acting Thermostat)
- 4 - Normally Closed - Left Hand Controls (All Pneumatic Control Types for Direct Acting Thermostat)
- 5 - Normally Open - Right Hand Controls (All Pneumatic Control Types for Direct Acting Thermostat)
- 6 - Normally Open - Left Hand Controls (All Pneumatic Control Types for Direct Acting Thermostat)
- 7 - Normally Closed - Right Hand Controls (All Pneumatic Control Types for Reverse Acting Thermostat)
- 8 - Normally Closed - Left Hand Controls (All Pneumatic Control Types for Reverse Acting Thermostat)

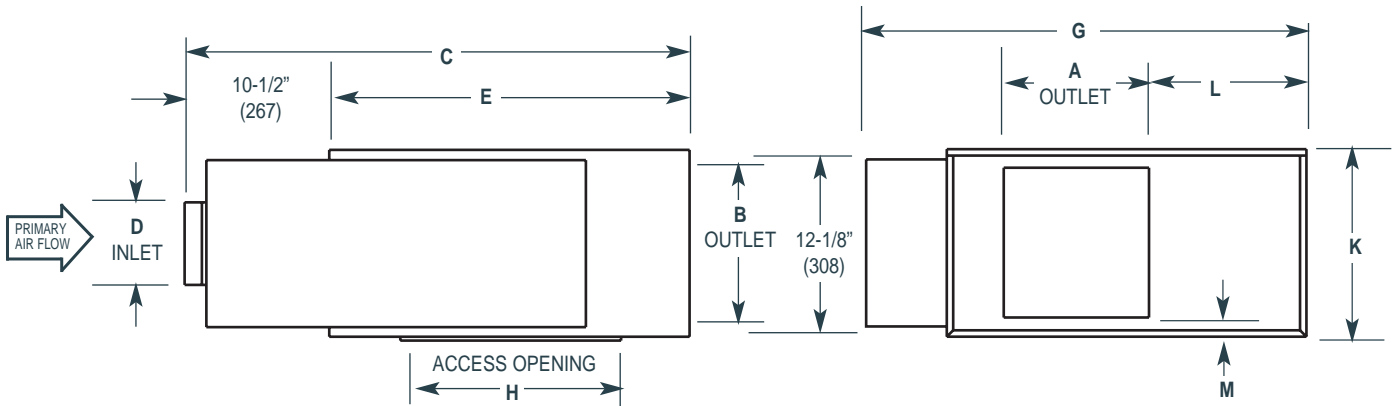
\*Electronic and DDC Units DO NOT Fail Open. "1" or "2" is used for Right or Left Hand Only. Electronic Units are shipped with the Damper in Open Position.

**DIMENSIONAL DATA - Constant Volume (Series Flow), Standard Design**

**FAN SIZES A - F**



**RIGHT HAND PRIMARY AIR UNIT SHOWN. LEFT HAND AVAILABLE.**



**DIMENSIONS LISTED IN INCHES (Millimeters)**

Fan Size	Inlet Size	Primary CFM (L/s)	Sec. CFM @ .25" E.S.P. (L/s)	Fan H.P.	Outlet		C	Inlet D	E	G	H	J	K	L	M
					A	B									
A	05	300 (142)	300 (142)	1/6				4-7/8 (124)							
B	06	430 (203)	430 (203)	1/6	6-1/2 (165)	6 (152)	40-1/2 (1029)	5-7/8 (149)	30 (762)	29 (737)	20 (508)	12 (305)	14 (356)	8-1/4 (210)	1 (25)
C	07	630 (297)	630 (297)	1/6				6-7/8 (175)							
D	08	995 (470)	995 (470)	1/4	11-3/4 (298)	8 (203)		7-7/8 (200)						5-1/2 (140)	
E	10	1550 (732)	1550 (732)	1/4	11-3/4 (298)	8 (203)	40 (1016)	9-7/8 (251)	30 (762)	40-1/2 (1029)	20 (508)	19-1/4 (489)	17-1/2 (445)	*15-1/2 (394)	1 (25)
F	12	2050 (968)	2050 (968)	1/2	13 (330)			11-7/8 (302)							

**NOTE:** Outlet dimensions refer to the actual opening.

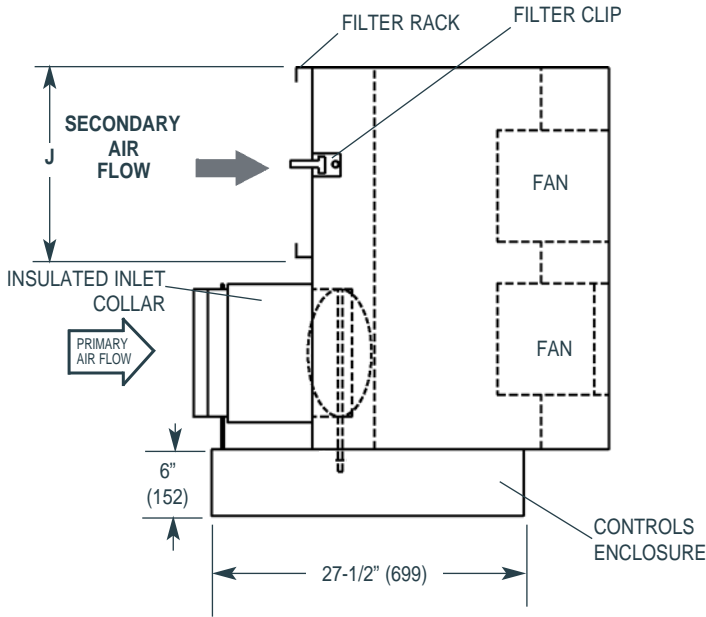
\*Left hand dimension is 7 (178).

FAN POWERED UNITS

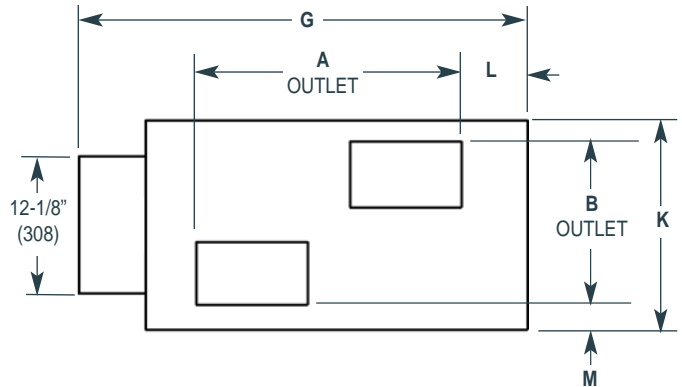
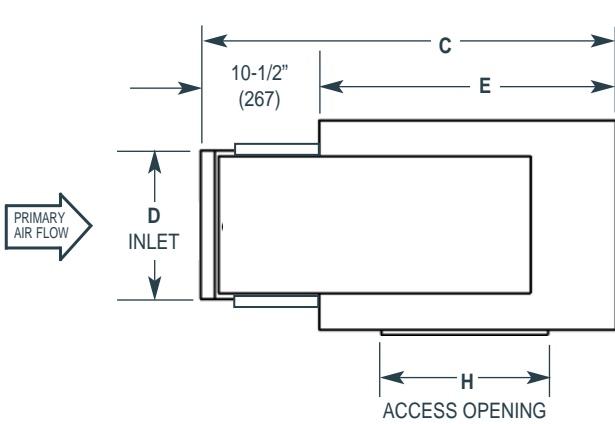
**DIMENSIONAL DATA – Constant Volume (Series Flow), Standard Design**

FAN POWERED UNITS

**• FAN SIZES G and H**



**RIGHT HAND PRIMARY AIR UNIT SHOWN. LEFT HAND AVAILABLE.**

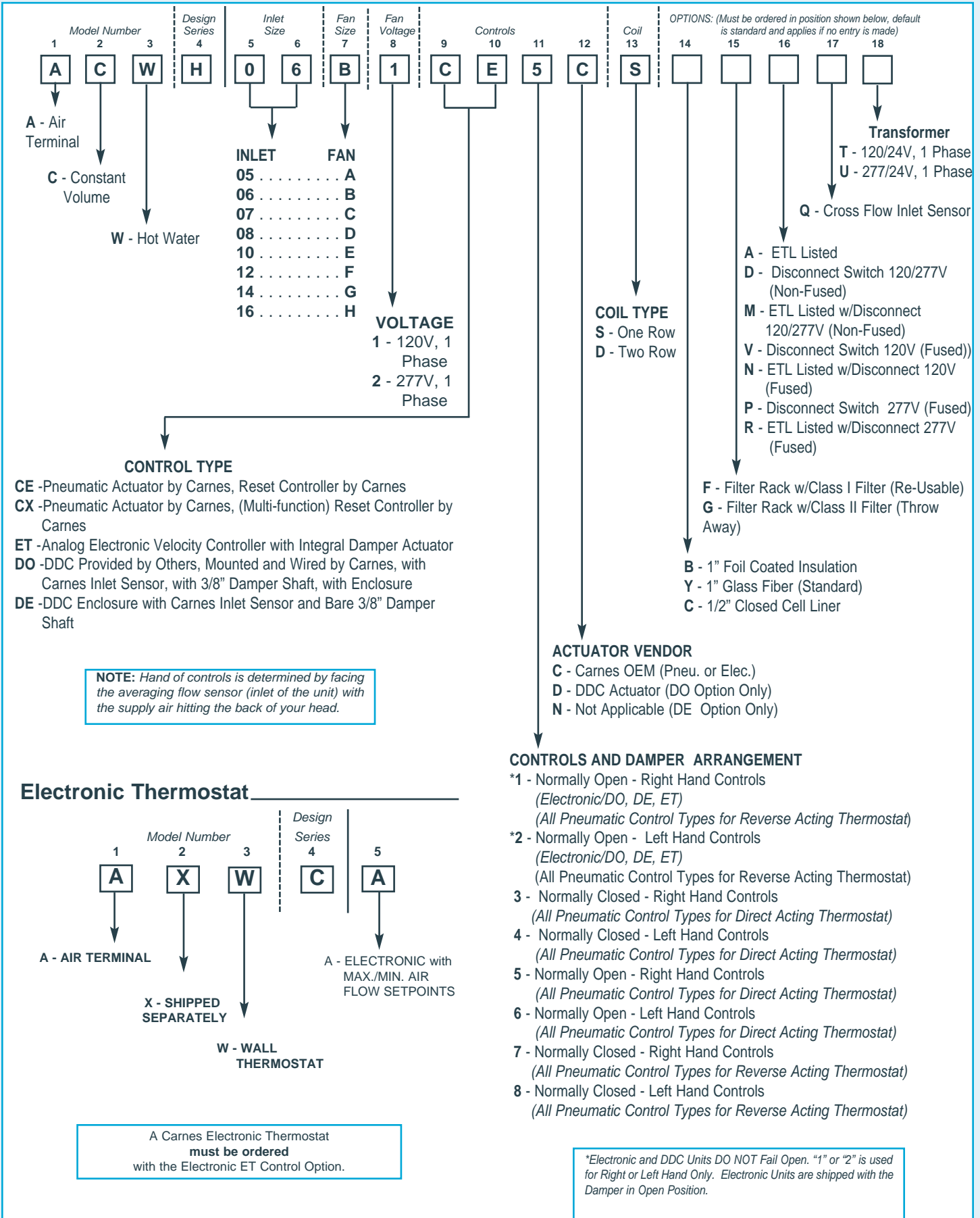


**DIMENSIONS LISTED IN INCHES (Millimeters)**

Fan Size	Inlet Size	Primary CFM (L/s)	Sec. CFM @ .25" E.S.P. (L/s)	Fan H.P.	Outlet		Inlet		E	G	H	J	K	L	M
					A	B	C	D							
G	14	3150 (1487)	3150 (1487)	1/2 (2)	29 (737)	15-1/4 (387)	40-1/2 (1029)	13-7/8 (352)	30 (762)	56 (1422)	17-3/4 (451)	28-1/4 (718)	17-1/2 (445)	10-1/2 (267)	1-1/2 (38)
H	16	3700 (1746)	3700 (1746)	1/2 (2)	31-1/2 (800)	15-1/4 (387)		15-7/8 (403)						9-1/4 (235)	

**Note:** Outlet dimensions refer to the actual opening.

# MODEL NUMBERING - Constant Volume (Series Flow), Standard Design

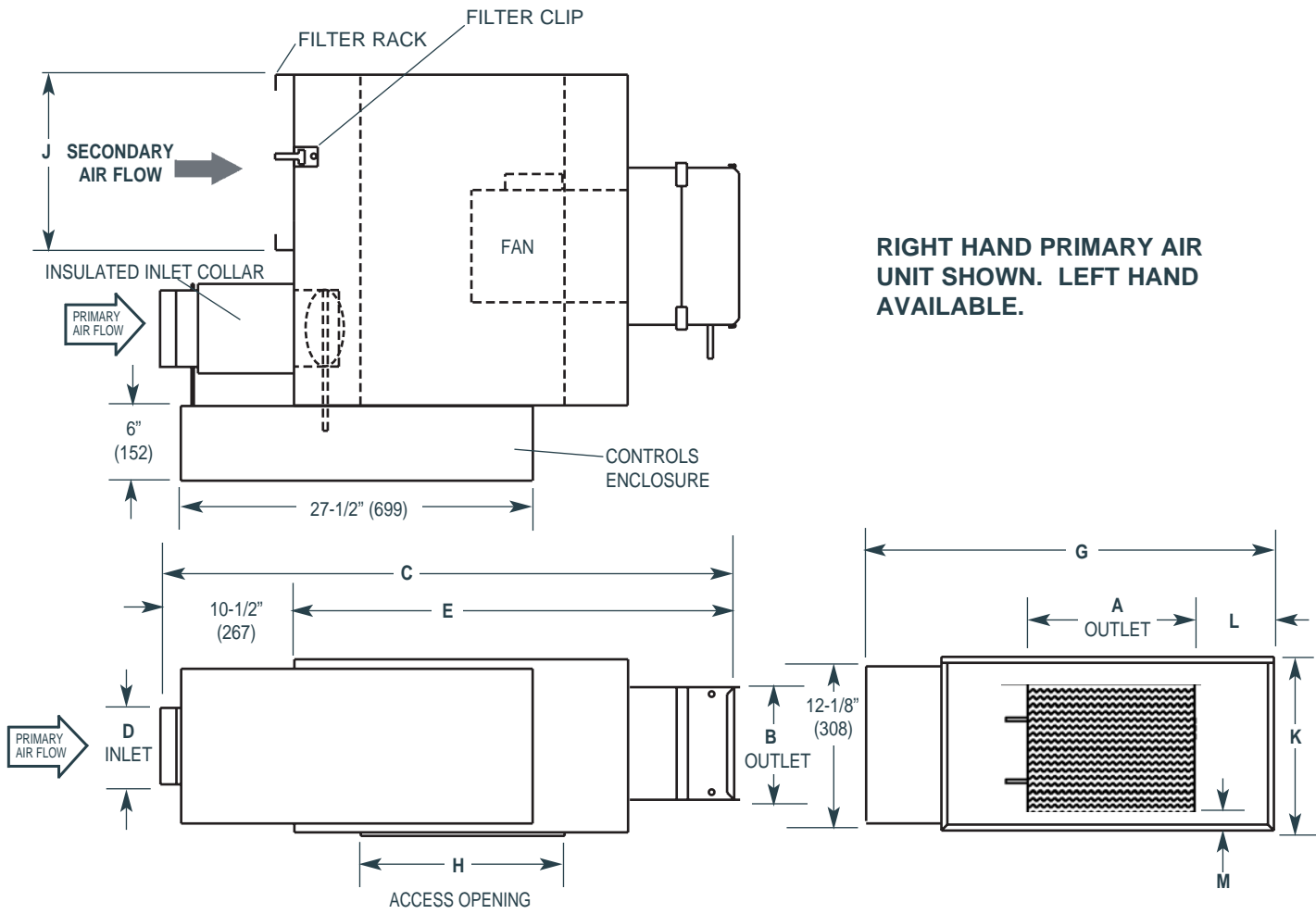


FAN POWERED UNITS

**DIMENSIONAL DATA – Constant Volume (Series Flow), Standard Design**

FAN POWERED UNITS

**• FAN SIZES A - F**



RIGHT HAND PRIMARY AIR UNIT SHOWN. LEFT HAND AVAILABLE.

**DIMENSIONS LISTED IN INCHES (Millimeters)**

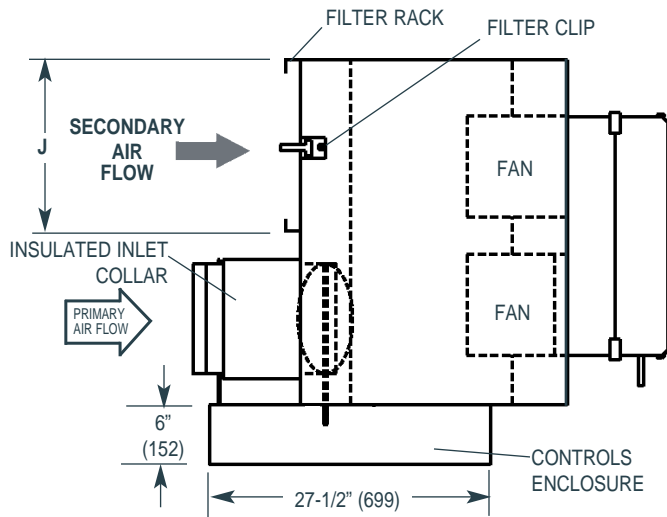
Fan Size	Inlet Size	Primary CFM (L/s)	Sec. CFM @ .25" E.S.P. (L/s)	Fan H.P.	Outlet		1 Row C	2 Row C	Inlet		1 Row E	2 Row E	G	H	J	K	L	M	
					A	B			D	E									
A	05	300 (142)	300 (142)	1/6					4-7/8 (124)										
B	06	430 (203)	430 (203)	1/6	14 (356)	12-1/2 (318)	48-5/8 (1235)	50 (1270)	5-7/8 (149)	38-1/8 (968)	39-1/2 (1003)	29 (737)	20 (508)	12 (305)	14 (356)	4-1/2 (114)	3/4 (19)		
C	07	630 (297)	630 (297)	1/6					6-7/8 (175)										
D	08	995 (470)	995 (470)	1/4					7-7/8 (200)										
E	10	1550 (732)	1550 (732)	1/4	16 (406)	15 (381)	48-5/8 (1235)	50 (1270)	9-7/8 (251)	38-1/8 (968)	39-1/2 (1003)	40-1/2 (1029)	20 (508)	19-1/4 (489)	17-1/2 (445)	*13-1/2 (343)	1-1/4 (32)		
F	12	2050 (968)	2050 (968)	1/2					11-7/8 (302)										

**Note:** Outlet is designed for slip and drive duct connection.

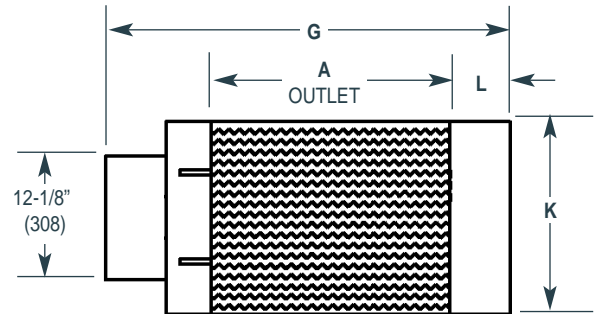
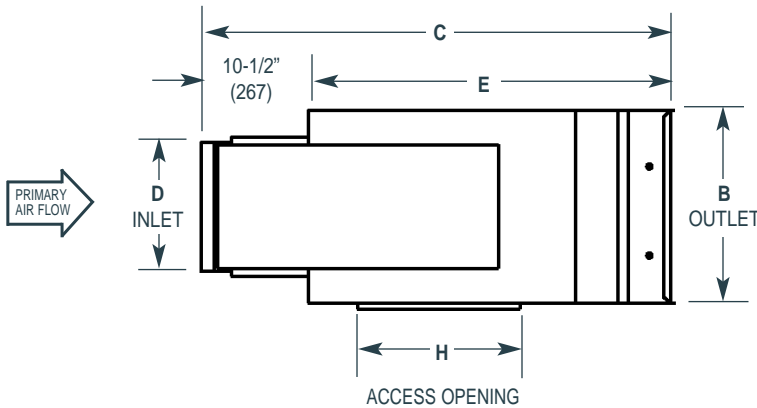
\*Left hand dimension is 4-7/8 (124).

**DIMENSIONAL DATA – Constant Volume (Series Flow), Standard Design**

**• FAN SIZES G and H**



RIGHT HAND PRIMARY AIR UNIT AND COIL CONNECTIONS SHOWN. LEFT HAND AVAILABLE.



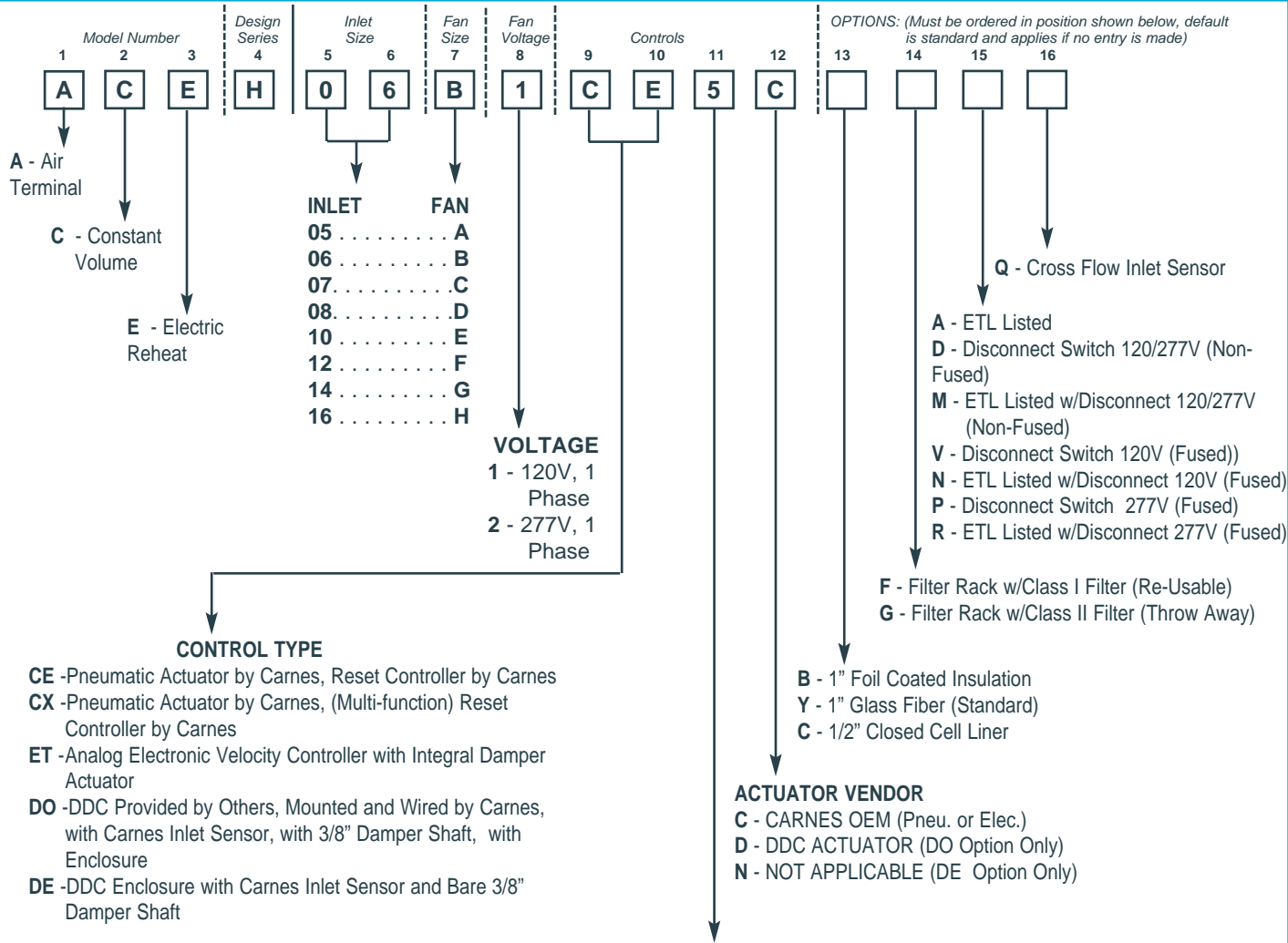
DIMENSIONS LISTED IN INCHES (Millimeters)																
Fan Size	Inlet Size	Primary CFM (L/s)	Sec. CFM @ .25" E.S.P. (L/s)	Fan H.P.	Outlet		1 Row	2 Row	Inlet	1 Row	2 Row	G	H	J	K	L
					A	B	C	C	D	E	E					
G	14	3150 (1487)	3150 (1487)	1/2 (2)					13-7/8 (352)	38-1/8	39-1/2	56	17-3/4	28-1/4	17-1/2	9
					32 (813)	17-1/2 (445)	48-5/8 (1235)	50 (1270)								
H	16	3700 (1746)	3700 (1746)	1/2 (2)	(813)	(445)	(1235)	(1270)	15-7/8 (403)	(968)	(1003)	(1422)	(451)	(718)	(445)	(229)

**Note:** Outlet is designed for slip and drive duct connection.

FAN POWERED UNITS

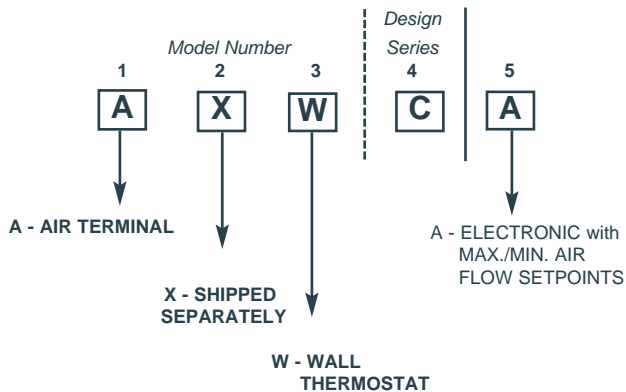
# MODEL NUMBERING – Constant Volume (Series Flow), Standard Design

FAN POWERED UNITS



**NOTE:** Hand of controls is determined by facing the averaging flow sensor (inlet of the unit) with the supply air hitting the back of your head.

## Electronic Thermostat



A Carnes Electronic Thermostat **must be ordered** with the Electronic ET Control Option.

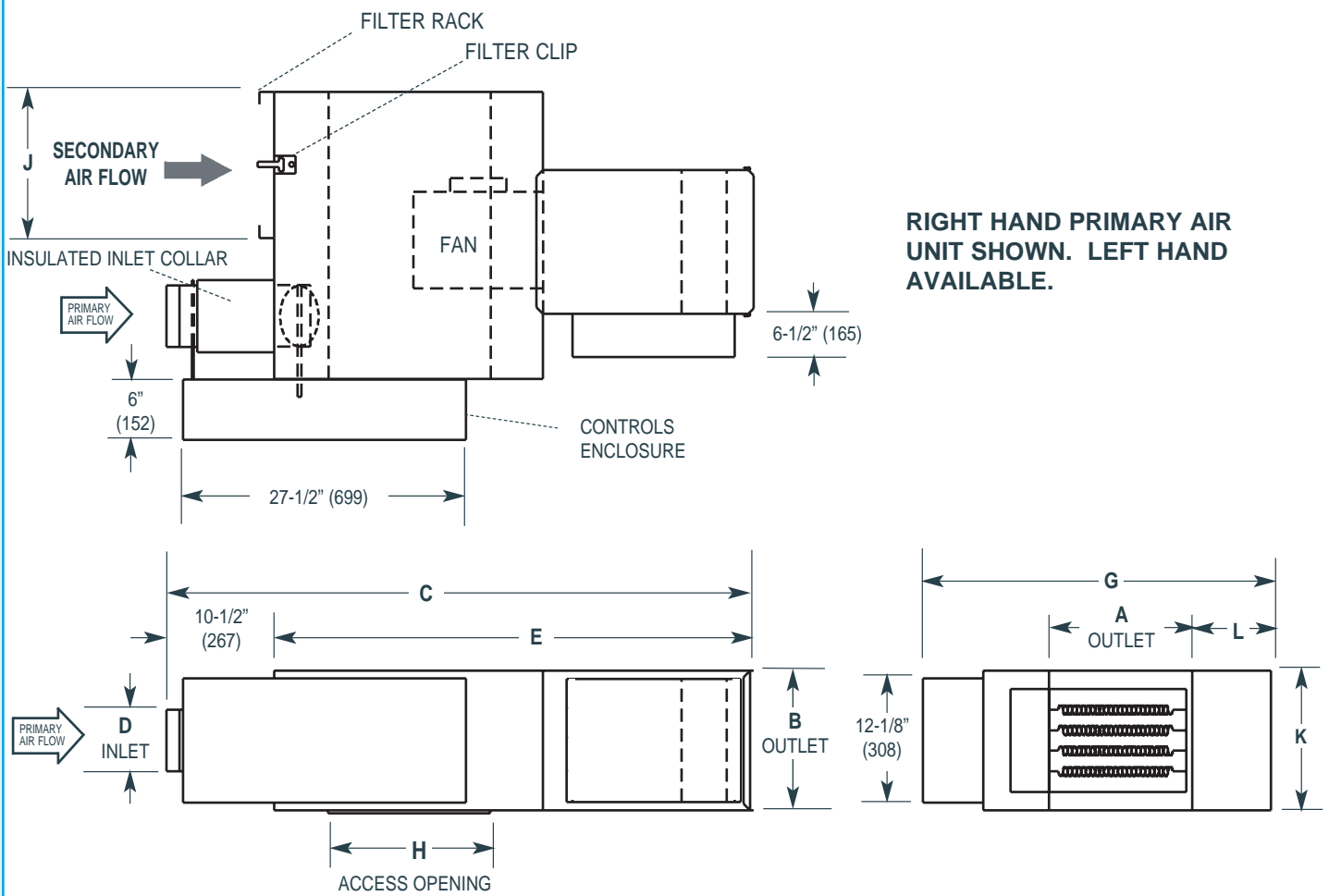
## CONTROLS AND DAMPER ARRANGEMENT

- \*1 - Normally Open - Right Hand Controls (Electronic/DO, DE, ET)  
(All Pneumatic Control Types for Reverse Acting Thermostat)
- \*2 - Normally Open - Left Hand Controls (Electronic/DO, DE, ET)  
(All Pneumatic Control Types for Reverse Acting Thermostat)
- 3 - Normally Closed - Right Hand Controls (All Pneumatic Control Types for Direct Acting Thermostat)
- 4 - Normally Closed - Left Hand Controls (All Pneumatic Control Types for Direct Acting Thermostat)
- 5 - Normally Open - Right Hand Controls (All Pneumatic Control Types for Direct Acting Thermostat)
- 6 - Normally Open - Left Hand Controls (All Pneumatic Control Types for Direct Acting Thermostat)
- 7 - Normally Closed - Right Hand Controls (All Pneumatic Control Types for Reverse Acting Thermostat)
- 8 - Normally Closed - Left Hand Controls (All Pneumatic Control Types for Reverse Acting Thermostat)

\*Electronic and DDC Units DO NOT Fail Open. "1" or "2" is used for Right or Left Hand Only. Electronic Units are shipped with the Damper in Open Position.

**DIMENSIONAL DATA - Constant Volume (Series Flow), Standard Design**

**FAN SIZES A - F**



FAN POWERED UNITS

**DIMENSIONS LISTED IN INCHES (Millimeters)**

Fan Size	Inlet Size	Primary CFM (L/s)	Sec. CFM @ .25" E.S.P. (L/s)	Fan H.P.	Outlet			Inlet D	E	G	H	J	K	L
					A	B	C							
A	05	300 (142)	300 (142)	1/6				4-7/8 (124)						
B	06	430 (203)	430 (203)	1/6	14 (356)	14 (356)	63-3/4 (1619)	5-7/8 (149)	53-1/4 (1353)	29 (737)	20 (508)	12 (305)	14 (356)	4-1/2 (114)
C	07	630 (297)	630 (297)	1/6				6-7/8 (175)						
D	08	995 (470)	995 (470)	1/4				7-7/8 (200)						
E	10	1550 (732)	1550 (732)	1/4	16 (406)	17-1/2 (445)	63-3/4 (1619)	9-7/8 (251)	53-1/4 (1353)	40-1/2 (1029)	20 (508)	19-1/4 (489)	17-1/2 (445)	*13-1/2 (343)
F	12	2050 (968)	2050 (968)	1/2				11-7/8 (302)						

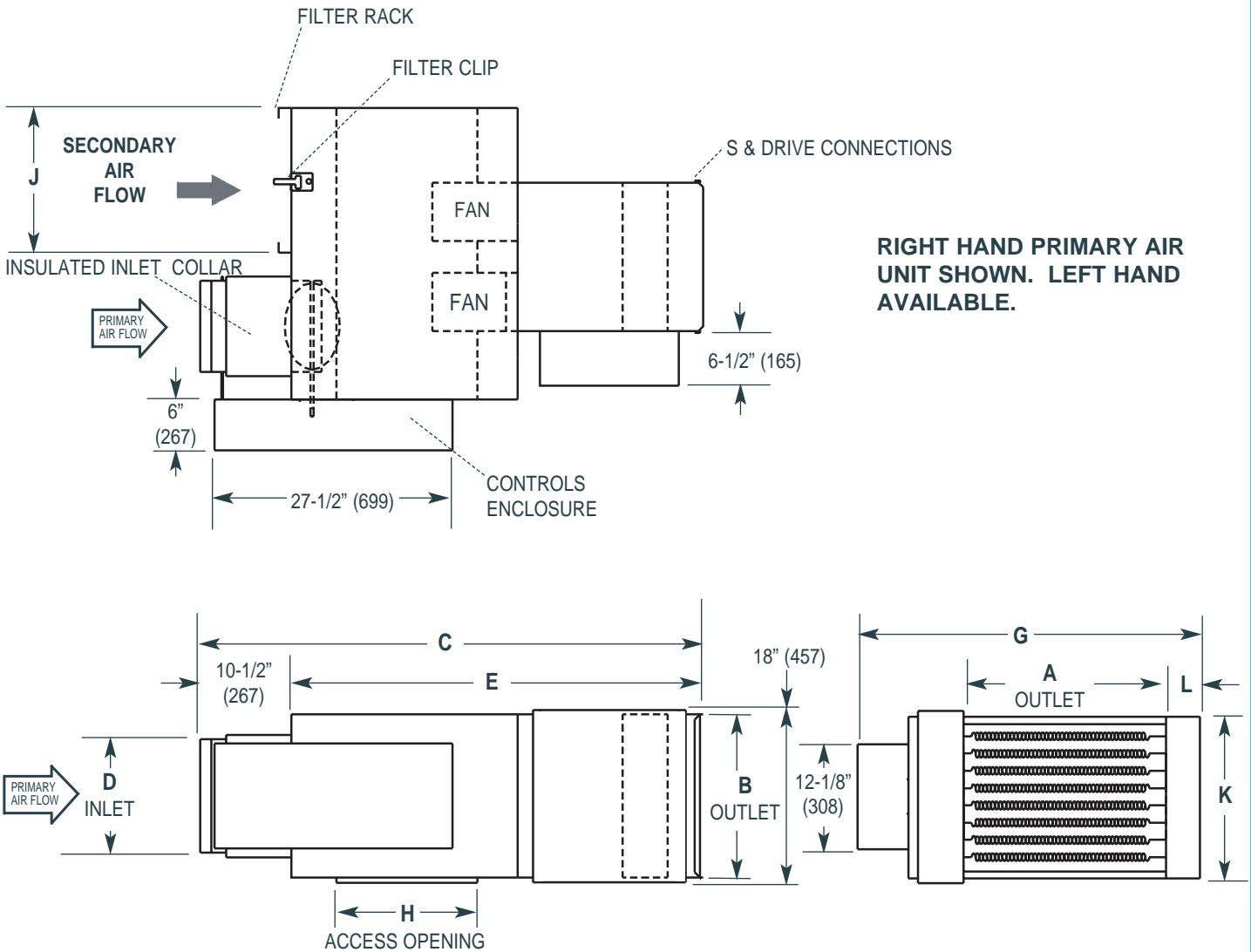
Note: Outlet is designed for slip and drive duct connection.

\*Left hand dimension is 4-7/8 (124).

**DIMENSIONAL DATA - Constant Volume (Series Flow), Standard Design**

FAN POWERED UNITS

**• FAN SIZES G and H**



**RIGHT HAND PRIMARY AIR UNIT SHOWN. LEFT HAND AVAILABLE.**

**DIMENSIONS LISTED IN INCHES (Millimeters)**

Fan Size	Inlet Size	Primary Nominal CFM (L/s)	Sec. Nom. CFM @ .25" E.S.P. (L/s)	Fan H.P.	Outlet		C	Inlet D	E	G	H	J	K	L
					A	B								
G	14	3150 (1487)	3150 (1487)	1/2 (2)	32	17-1/2	63-1/4	13-7/8 (352)	53-1/4	56	17-3/4	28-1/4	17-1/2	9
H	16	3700 (1746)	3700 (1746)	1/2 (2)	(813)	(445)	(1607)	15-7/8 (403)	(1353)	(1422)	(451)	(718)	(445)	(229)

**Note:** Outlet is designed for slip and drive duct connection.