

## Performance Data • NC Level Application Guide Model Series 35S • Series Flow



**D**  
FAN POWERED TERMINAL UNITS

Unit Size	Inlet Size	Airflow		Min inlet ΔPs		NC Levels @ Inlet pressure (ΔPs) shown												
						DISCHARGE					RADIATED							
						Fan Only	Min. ΔPs	0.5" w.g. (125 Pa)	1.0" w.g. (250 Pa)	1.5" w.g. (375 Pa)	2.0" w.g. (500 Pa)	Fan Only	Min. ΔPs	0.5" w.g. (125 Pa)	1.0" w.g. (250 Pa)	1.5" w.g. (375 Pa)	2.0" w.g. (500 Pa)	
1	5	250	118	0.19	47	24	23	23	24	24	24	39	31	34	35	36	35	
		175	83	0.10	25	-	-	-	-	-	-	31	26	28	28	29	29	
		100	47	0.03	7	-	-	-	-	-	-	-	-	-	21	25	28	
	6	400	189	0.15	37	33	30	30	30	31	31	36	40	40	40	40	41	
		300	142	0.09	22	25	24	25	24	25	25	30	35	35	36	36	36	
		250	118	0.06	15	24	21	23	24	24	24	29	33	34	33	33	34	
		200	94	0.04	10	-	-	-	-	-	-	25	29	29	29	29	30	
		100	47	0.01	2	-	-	-	-	-	-	-	-	-	20	23	24	
		8	400	189	0.03	7	33	30	29	29	29	29	40	38	38	38	39	39
	2	8	300	142	0.02	5	26	24	23	23	23	33	34	33	34	34	35	
			250	118	0.01	2	26	23	21	23	23	31	29	30	31	31	31	
			200	94	0.01	2	-	-	-	-	-	29	28	28	29	28	29	
670			316	0.05	12	27	27	29	29	27	30	30	30	33	35	38	40	
3	8	550	260	0.05	12	20	21	21	20	21	22	25	25	30	34	35	38	
		450	212	0.05	12	-	-	-	-	-	-	20	20	26	30	33	35	
		300	142	0.05	12	-	-	-	-	-	-	-	-	22	25	30	32	
		700	330	0.05	12	-	-	-	-	-	-	25	25	29	32	35	36	
	10	600	283	0.05	12	-	-	-	-	-	-	25	25	28	30	34	35	
		450	212	0.05	12	-	-	-	-	-	-	23	22	25	27	30	33	
		1200	566	0.05	12	25	25	25	25	25	25	32	32	34	35	39	40	
		900	425	0.05	12	20	-	20	20	22	23	30	29	30	35	36	38	
4	10	700	330	0.05	12	-	-	-	-	-	25	24	28	30	34	35		
		450	212	0.05	12	-	-	-	-	-	22	22	23	28	30	32		
		1100	519	0.05	12	22	22	22	24	23	25	32	32	35	38	39	41	
		1000	472	0.05	12	20	20	20	21	22	25	28	30	34	35	39	40	
	12	850	401	0.05	12	-	-	-	-	-	20	26	26	30	34	35	38	
		1500	708	0.05	12	31	30	31	32	31	32	40	36	39	41	42	45	
		1300	614	0.05	12	27	26	27	29	29	29	37	34	35	38	40	42	
		1100	519	0.05	12	22	21	21	21	20	25	32	30	33	35	39	40	
5	12	850	401	0.05	12	-	-	-	-	-	26	25	29	33	35	37		
		1600	755	0.05	12	28	26	28	29	28	29	41	39	40	40	42	45	
		1400	661	0.05	12	25	25	25	25	25	25	39	35	38	39	40	44	
		1200	566	0.05	12	22	20	22	20	20	22	36	32	32	35	35	40	
	14	1050	495	0.05	12	-	-	-	-	-	-	32	28	30	34	36	40	
		1925	909	0.05	12	34	34	34	35	35	35	42	41	42	44	45	48	
		1700	802	0.05	12	30	29	30	30	30	30	39	37	40	41	42	44	
		1400	661	0.05	12	26	25	25	25	25	25	35	34	36	38	39	40	
6	14	1050	496	0.05	12	-	-	-	-	-	32	25	30	33	35	37		
		2300	1086	0.05	12	37	37	37	38	38	39	42	45	46	47	48	50	
		2000	944	0.05	12	34	32	34	34	35	35	40	40	42	44	45	47	
		1700	802	0.05	12	29	27	29	29	28	30	37	36	39	40	40	44	
	7	16	1400	661	0.05	12	25	22	24	24	25	30	34	31	35	36	40	
			1100	519	0.05	12	-	-	-	-	-	20	29	25	29	34	36	39
			3050	1440	0.18	45	31	29	31	33	31	32	45	42	44	44	49	52
			2700	1274	0.14	35	28	27	28	28	29	29	42	39	41	42	45	47
18	2300	1080	0.10	25	25	25	25	25	25	26	40	36	35	39	42	45		
	2000	944	0.07	17	20	20	20	20	20	22	36	32	34	37	40	44		
	3650	1723	0.05	12	36	36	36	37	37	38	46	45	46	47	49	51		
	3250	1534	0.05	12	34	32	34	34	34	34	43	41	44	45	46	48		
7	18	2600	1227	0.05	12	29	27	28	28	28	29	40	38	40	41	42	45	
		2000	944	0.05	12	20	20	21	20	20	22	36	30	34	36	38	40	

### Explanation of NC Levels:

- NC levels are calculated from the published raw data and based on procedures outlined in Appendix E, AHRI 885-2008.
- Discharge sound attenuation deductions are based on environmental effect, duct lining, branch power division, insulated flex duct, end reflection and space effect and are as follows:

Discharge attenuation	Octave Band						
	2	3	4	5	6	7	
< 300 cfm	24	28	39	53	59	40	
300 – 700 cfm	27	29	40	51	53	39	
> 700 cfm	29	30	41	51	52	39	

- Radiated sound attenuation deductions are based on a mineral tile ceiling and environmental effect and are as follows:

Radiated attenuation	Octave Band						
	2	3	4	5	6	7	
Total dB reduction	18	19	20	26	31	36	

- Min. inlet ΔPs is the minimum static pressure required to achieve rated airflow (damper full open).
- Dash (-) in space denotes an NC level of less than 20.

- Discharge (external) static pressure is 0.25" w.g. (63 Pa) in all cases.

7. For a detailed explanation of the attenuation factors and the procedures for calculating room NC levels, please refer to the "Performance Data Explanation" on page D17 and the "Acoustical Engineering Guidelines" in the Engineering Section of this catalog.



# FAN POWERED TERMINAL UNITS



**Performance Data • Radiated Sound Power Levels**  
**Model Series 35S • Series Flow (Constant Volume) • Basic Unit**  
**VAV: Fiberglass**



**D**  
**FAN POWERED TERMINAL UNITS**

Unit Size	Inlet Size	Airflow cfm /s		Min. inlet ΔPs "w.g. Pa	Fan Only		Fan and 100% Primary Air – Sound Power Octave Bands @ Inlet pressure (ΔPs) shown																																		
							Minimum ΔPs					0.5" wg (125Pa)ΔPs					1.0" wg (249Pa)ΔPs					1.5" wg (375Pa)ΔPs					2.0" wg (500Pa)ΔPs														
							2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7					
1	6	500	236	0.57	141	74	62	53	49	44	41	74	60	56	51	47	44	*	*	*	*	*	*	74	62	54	51	53	54	74	63	59	57	57	60	75	64	61	59	58	62
		400	189	0.20	50	<b>70</b>	<b>58</b>	<b>50</b>	<b>44</b>	<b>38</b>	<b>35</b>	71	58	53	47	42	38	71	58	51	46	46	43	71	58	55	51	53	53	<b>72</b>	<b>61</b>	<b>58</b>	<b>55</b>	<b>56</b>	<b>59</b>	72	62	60	57	58	61
		300	142	0.09	22	68	54	47	39	33	30	65	52	47	40	34	30	66	53	48	43	46	43	67	55	52	49	52	52	67	58	55	52	56	58	68	59	57	54	57	59
		200	142	0.04	22	62	48	42	34	28	33	61	47	43	33	27	22	62	49	45	42	45	43	63	52	48	46	51	49	64	55	52	49	54	54	64	55	54	51	55	55
		75	35	0.01	2	57	43	36	27	-	-	52	39	34	24	-	-	53	42	38	35	33	30	55	43	42	39	39	37	55	44	46	43	44	43	55	43	42	42	45	45
	8	400	189	0.03	7	74	63	56	51	46	43	72	60	54	48	43	41	72	60	54	49	48	46	72	61	55	51	53	52	73	63	58	53	55	57	73	64	59	55	57	59
		300	142	0.02	5	68	56	49	43	37	34	69	57	51	45	40	37	68	57	51	46	45	43	69	59	53	48	51	50	70	60	55	50	53	53	70	60	56	52	55	56
		250	118	0.01	2	67	55	48	42	36	33	66	52	47	40	34	31	66	54	48	43	44	41	67	56	50	46	49	48	67	57	53	49	51	51	67	57	54	51	52	52
		200	94	0.01	2	65	52	46	39	34	30	64	51	45	38	33	29	64	51	46	41	42	39	65	53	48	44	46	44	64	54	50	47	48	47	65	54	52	48	50	50
		2	8	670	316	0.05	12	<b>63</b>	<b>58</b>	<b>55</b>	<b>49</b>	<b>43</b>	<b>41</b>	64	59	56	50	44	42	66	62	58	54	53	52	69	65	61	57	57	<b>70</b>	<b>66</b>	<b>63</b>	<b>59</b>	<b>60</b>	<b>62</b>	71	69	64	61	61
550	260			0.05	12	61	55	52	45	39	37	61	55	52	45	40	37	63	59	55	51	51	49	66	63	58	55	55	55	67	65	60	57	58	59	68	67	62	59	60	62
450	212			0.05	12	58	51	47	40	34	31	59	51	44	39	34	31	61	56	52	49	49	46	63	60	55	52	53	53	64	61	58	55	56	57	65	64	60	57	58	59
300	142		0.05	12	57	49	45	37	31	28	57	43	44	35	30	27	56	52	48	45	45	42	59	56	52	49	49	47	60	58	55	53	53	51	61	59	57	56	56	54	
8	700		330	0.05	12	62	52	52	46	43	39	63	53	52	46	44	39	65	56	54	52	52	50	66	59	57	55	58	59	68	61	60	58	61	64	69	65	62	60	64	67
	600		283	0.05	12	61	51	51	44	42	37	61	52	51	45	41	37	63	55	53	50	52	50	65	58	56	54	58	58	66	61	59	57	61	63	67	63	60	59	63	65
	450	212	0.05	12	55	43	49	40	37	31	57	48	48	40	36	30	59	51	50	48	49	48	60	54	53	51	55	54	63	57	56	56	60	60	63	59	58	58	61	61	
3	10	1200	566	0.05	12	<b>68</b>	<b>59</b>	<b>57</b>	<b>52</b>	<b>51</b>	<b>47</b>	67	60	57	52	51	47	69	62	59	56	57	55	71	65	61	58	61	61	<b>72</b>	<b>65</b>	<b>64</b>	<b>61</b>	<b>64</b>	<b>65</b>	68	68	65	63	66	68
		900	425	0.05	12	66	55	54	49	46	42	64	56	54	48	46	42	66	58	56	53	54	52	68	60	59	56	60	60	70	64	62	60	63	64	68	66	63	61	65	67
	700	330	0.05	12	60	52	51	44	41	36	58	51	50	43	40	36	61	55	53	50	51	48	64	59	56	54	57	57	65	60	59	57	61	62	66	62	60	59	64	66	
	450	212	0.05	12	54	48	48	39	35	28	55	47	48	39	34	27	56	50	49	46	48	45	58	55	53	51	56	55	59	56	55	54	59	60	62	58	57	59	61	62	
4	10	1100	519	0.05	12	68	60	54	50	47	43	68	60	54	50	48	45	70	63	57	54	58	58	72	67	61	57	62	65	73	68	64	60	64	69	74	71	65	61	65	71
		1000	472	0.05	12	65	56	51	49	44	40	66	58	53	49	46	42	69	61	56	53	57	57	70	65	59	55	61	63	72	68	62	58	61	68	73	70	65	61	65	71
		850	401	0.05	12	64	54	50	46	41	37	64	55	51	46	42	37	66	59	53	51	55	55	68	63	58	55	60	63	70	65	61	57	62	67	70	67	63	59	64	70
	12	1500	708	0.05	12	<b>74</b>	<b>65</b>	<b>58</b>	<b>56</b>	<b>54</b>	<b>51</b>	71	65	59	55	54	52	73	67	61	57	58	56	75	69	64	60	61	63	<b>76</b>	<b>71</b>	<b>66</b>	<b>62</b>	<b>64</b>	<b>67</b>	76	73	68	64	65	70
		1300	614	0.05	12	72	63	58	53	51	47	69	63	57	53	50	48	70	65	59	55	56	55	72	67	63	58	61	62	73	69	65	61	63	67	74	71	67	63	65	69
1100	519	0.05	12	68	60	54	50	47	43	66	59	54	49	46	43	68	62	57	53	55	54	70	65	61	57	60	61	71	66	64	60	62	66	72	69	65	61	64	68		
850	401	0.05	12	64	55	50	45	41	36	62	54	50	44	40	35	64	58	54	50	53	51	66	62	58	54	59	60	68	65	61	57	61	64	68	66	63	59	63	66		
5	12	1600	755	0.05	12	75	66	58	53	51	48	73	65	58	52	50	48	74	67	63	56	58	57	74	69	64	59	62	64	75	70	67	63	64	68	76	73	69	65	66	71
		1400	661	0.05	12	73	62	55	50	47	44	70	61	55	48	46	44	72	65	60	54	56	55	73	67	63	58	61	63	73	70	66	61	64	68	74	72	68	64	65	70
		1200	566	0.05	12	71	60	53	47	45	41	68	58	52	46	43	40	67	62	57	52	55	54	70	65	61	58	60	62	71	67	64	60	63	66	72	70	66	62	64	69
		1050	495	0.05	12	68	56	50	44	41	37	65	55	50	43	39	36	66	60	55	50	54	53	67	63	59	56	60	61	70	66	62	58	62	65	71	69	65	61	64	68
	14	1925	908	0.05	12	<b>76</b>	<b>71</b>	<b>61</b>	<b>57</b>	<b>56</b>	<b>53</b>	75	69	62	58	55	53	76	71	64	59	61	61	77	72	66	61	64	66	<b>77</b>	<b>73</b>	<b>67</b>	<b>63</b>	<b>66</b>	<b>70</b>	78	75	69	65	67	73
		1700	802	0.05	12	73	67	59	54	52	50	72	65	59	53	51	49	74	68	61	56	59	59	75	70	64	59	63	66	75	71	65	61	64	69	76	72	67	63	66	71
		1400	661	0.05	12	71	64	56	50	48	46	69	61	55	49	46	44	71	65	58	54	57	57	72	67	61	57	62	64	73	67	63	59	64	68	73	70	64	61	65	70
1050	496	0.05	12	68	57	50	44	41	37	63	55	50	43	40	37	66	59	53	50	55	53	66	62	57	54	60	62	69	64	59	56	62	65	69	66	62	59	64	69		
6	14	2300	1086	0.05	12	<b>76</b>	<b>71</b>	<b>64</b>	<b>61</b>	<b>59</b>	<b>56</b>	77	73	65	62	59	57	77	74	67	63	64	65	79	75	68	64	66	69	<b>79</b>	<b>75</b>	<b>69</b>	<b>65</b>	<b>67</b>	<b>71</b>	80	77	71	67	69	73
		2000	944	0.05	12	74	68	61	58	55	52	74	70	62	58	55	52	75	71	64	60	61	62	76	72	65	62	64	67	77	73	67	64	66	70	77	75	69	65	68	73
		1700	802	0.05	12	72	65	59	55	52	48	70	65	59	54	50	47	72	68	61	57	59	59	73	69	63	59	63	66	74	70	65	62	65	69	75	72	67	63	67	72
		1400	661	0.05	12	69	62	56	51	47	43	67	61																												

## Performance Data • AHRI Certification and Performance Notes

### Model Series 35S • Series Flow (Constant Volume) • Basic Unit • AHRI Certification Rating Points

#### VAV: Fiberglass

Unit Size	Inlet Size	Fan CFM		Fan† Watts	Fan Only* @ .25" w.g. (62 Pa) ΔPs														Primary CFM		Min. Inlet ΔPs		Fan + 100% Primary @1.5" w.g. (375 Pa) ΔPs w/ .25" w.g. (62 Pa) Discharge ΔPs						
		cfm	l/s		Discharge							Radiated							cfm	l/s	"w.g.	Pa	Radiated						
					2	3	4	5	6	7	2	3	4	5	6	7	2	3					4	5	6	7			
1	6	400	189	180	76	73	68	67	63	60	70	58	50	44	38	35	400	189	.20	50	72	61	58	55	56	59			
2	8	670	319	230	73	71	67	64	61	60	63	58	55	49	43	41	675	319	.05	12	70	66	63	59	60	62			
3	10	1200	566	450	70	67	69	65	62	61	68	59	57	52	51	47	1100	519	.05	12	72	65	64	61	64	65			
4	12	1500	708	580	77	75	72	72	68	67	74	65	58	56	54	51	1500	708	.05	12	76	71	66	62	64	67			
5	14	1925	908	850	79	76	74	74	71	70	76	71	61	57	56	53	1900	897	.05	12	77	73	67	63	66	70			
6	14	2300	1085	1175	82	80	77	77	74	73	76	71	64	61	59	56	2100	991	.05	12	79	75	69	65	67	71			
7	18	3650	1722	1700	79	78	76	77	74	73	79	74	64	60	59	56	3500	1652	.05	12	80	76	70	66	69	73			

† PSC Motor. Size 1 with ECM.

\* Primary air valve is closed and therefore primary cfm is zero.



Ratings are certified in accordance with AHRI Standards.

#### Performance Notes:

1. Discharge (external) static pressure is 0.25" w.g. (63 Pa) in all cases, which is the difference (ΔPs) in static pressure from terminal discharge to the room. Discharge Sound Power Levels (SWL) now include duct end reflection energy as part of the standard rating. Including the duct end correction provides sound power levels that would normally be transmitted into an acoustically, non-reflective duct. The effect of including the energy correction to the discharge SWL, is higher sound power levels when compared to previous AHRI certified data. For more information on duct end reflection calculations see AHRI 880-2011.
2. Radiated sound power is the breakout noise transmitted through the unit casing walls.

3. Sound power levels are in decibels, dB re 10<sup>-12</sup> watts.
4. All sound data listed by octave bands is raw data without any corrections for room absorption or duct attenuation. Dash (-) in space indicates sound power level is less than 20 dB or equal to background.
5. Min. inlet ΔPs is the minimum operating pressure of the primary air valve section. Asterisk (\*) in space indicates that the minimum inlet static pressure requirement is greater than 0.5" w.g. (125 Pa) at rated airflow.
6. Data derived from independent tests conducted in accordance with ANSI / ASHRAE Standard 130 and AHRI Standard 880.

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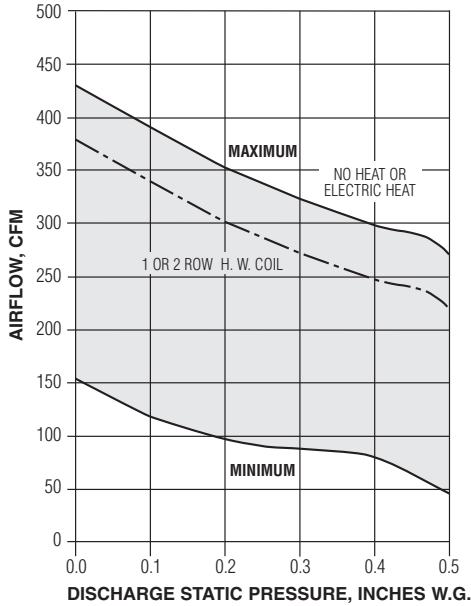
FAN POWERED TERMINAL UNITS

## Performance Data

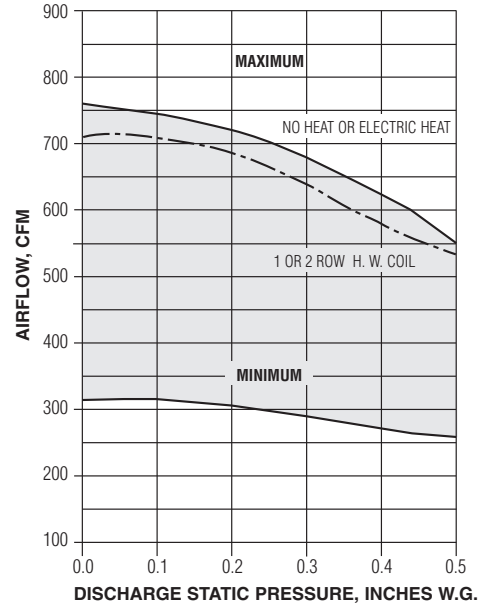
### PSC Motor Fan Curves – Airflow vs. Downstream Static Pressure

#### 35S Series • Series Flow

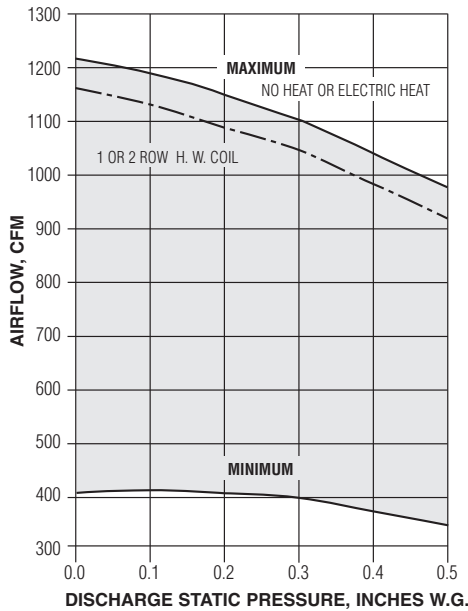
#### Unit Size 1



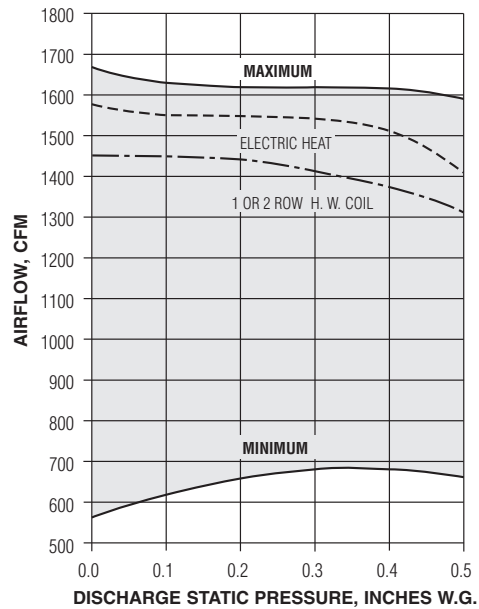
#### Unit Size 2



#### Unit Size 3



#### Unit Size 4



- Fan curves shown are applicable to 120, 208, 240 and 277 volt, single phase PSC motors.

#### Electrical Motor Data

Unit Size	Motor H. P.	PSC Motor FLA		
		120/1/60	208/1/60	277/1/60
1	1/10	3.0	2.0	0.9
2	1/10	3.3	2.0	1.0
3	1/4	5.8	3.6	1.8
4	1/3	6.2	4.1	2.0

FLA = Full load amperage

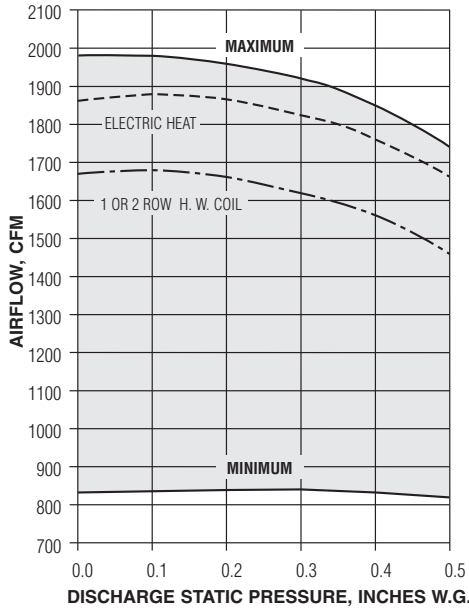
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FAN POWERED TERMINAL UNITS

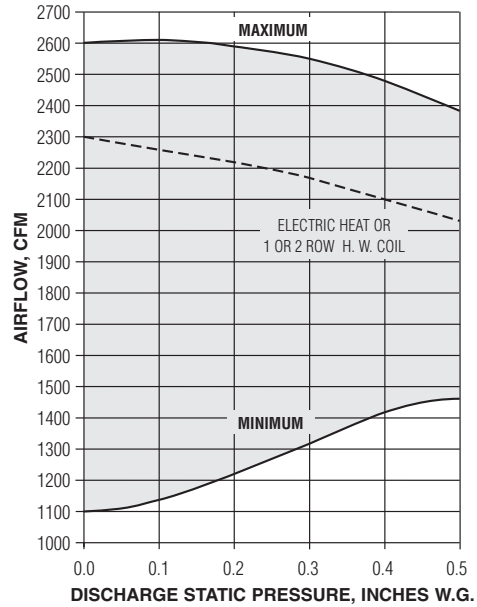
## Performance Data

### PSC Motor Fan Curves – Airflow vs. Downstream Static Pressure 35S Series • Series Flow

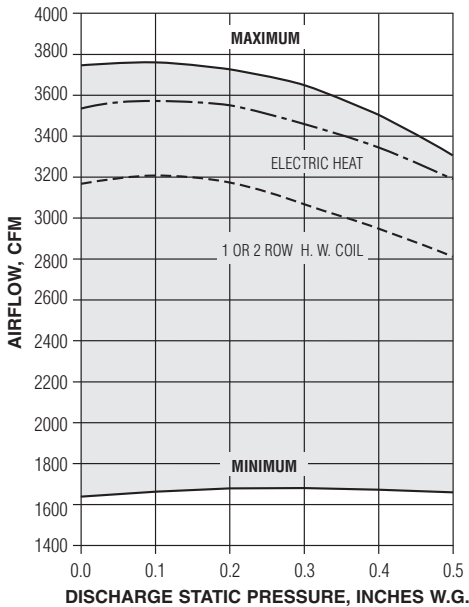
**Unit Size 5**



**Unit Size 6**



**Unit Size 7**



- Fan curves shown are applicable to 120, 208, 240 and 277 volt, single phase PSC motors.

#### Electrical Motor Data

Unit Size	Motor H. P.	PSC Motor FLA		
		120/1/60	208/1/60	277/1/60
5	1/2	10.1	6.5	3.3
6	3/4	13.4	8.4	4.5
7	2@1/2	20.2	13.0	6.6

FLA = Full load amperage

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FAN POWERED TERMINAL UNITS

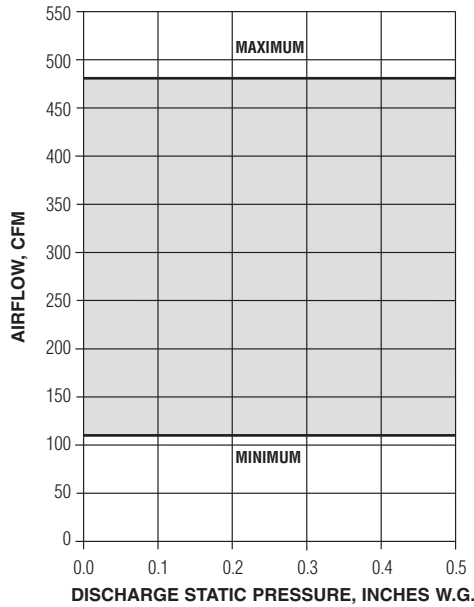
## Performance Data

### ECM Motor Option Fan Curves – Airflow vs. Downstream Static Pressure 35S Series • Series Flow • EPIC Fan Technology®

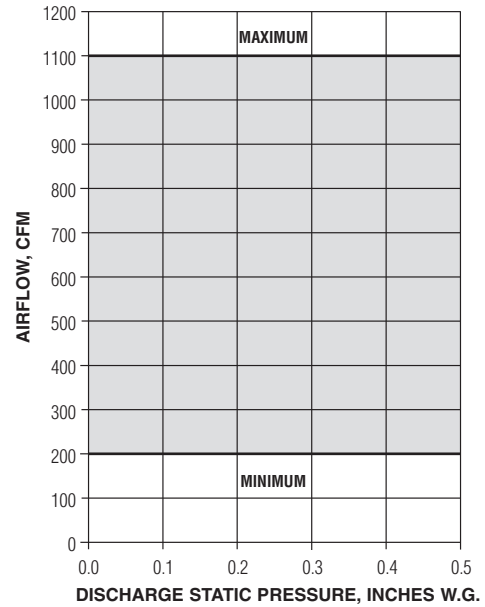
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**FAN POWERED TERMINAL UNITS**

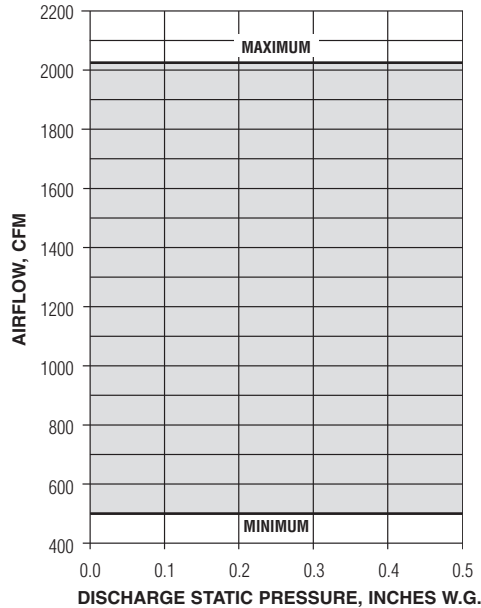
#### Unit Size 1



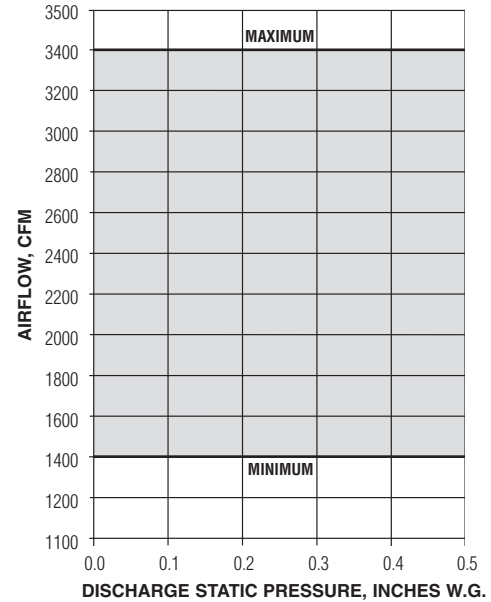
#### Unit Size 3



#### Unit Size 5



#### Unit Size 7



#### Electrical Data

Unit Size	Motor H. P.	ECM FLA			
		120/1/60	208/1/60	240/1/60	277/1/60
1	*	2.8	1.9	1.7	1.6
3	*	5.7	3.4	3.5	3.1
5	*	10.9	7.4	7.0	6.1
7	*	19.2	12.2	11.6	10.0

\* The ECM is a variable horsepower motor.  
Refer to Selectworks Schedule.  
FLA = Full load amperage

#### NOTES:

- The fan curves for the ECM motor are unlike those for traditional PSC motors. The ECM motor is pressure independent and constant volume in operation at factory or field set point within the shaded area. Airflow does not vary with changing static pressure conditions. The motor compensates for any changes in external static pressure or induced air conditions such as filter loading.
- Airflow can be set to operate on horizontal performance line at any point within shaded area using the solid state volume controller provided.
- Fan curves shown are applicable to 120, 208, 240 and 277 volt, single phase ECM motors. ECM motors, although DC in operation, include a built-in inverter.



## Performance Data Explanation

### Sound Power Levels vs. NC Levels

The **Nailor Model Series: 35S, 35SST, 35S-OAI and 35SST-OAI, 35S-CVP, 37S, 37SST, 35N and 37N** fan powered terminal unit performance data is presented in two forms.

The laboratory obtained discharge and radiated sound power levels in octave bands 2 through 7 (125 through 4000 Hz) center frequency for each unit size at various flow rates and inlet static pressures is presented. This data is derived in accordance with ANSI/ASHRAE Standard 130-2008 and AHRI Standard 880-2011. This data is "raw" with no attenuation deductions and includes AHRI Certification standard rating points.

Nailor also provides an "NC Level" table as an application aid in terminal selection, which include attenuation allowances as explained below. The suggested attenuation allowances are typical and are not representative of specific job site conditions. It is recommended that the sound power level data be used and a detailed NC calculation be performed using the procedures outlined in AHRI 885-2008 for accurate space sound levels.

### Explanation of NC Levels

Tabulated NC levels are based on attenuation values as outlined in AHRI Standard 885-2008 "Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets". AHRI Standard 885-2008, Appendix E provides typical sound attenuation values for air terminal discharge sound and air terminal radiated sound.

As stated in AHRI-885-2008, Appendix E, "These values can be used as a quick method of estimating space sound levels when a detailed evaluation is not available. The typical attenuation values are recommended for use by manufacturers to estimate application sound levels. In product catalogs, the end use environments are not known and the following factors are provided as typical attenuation values. Use of these values will allow better comparison between manufacturers and give the end user a value which will be expected to be applicable for many types of space."

Please refer to the Performance Data Caveat on page A20 of this catalog.

### Radiated Sound

Table E1 of Appendix E provides typical radiated sound attenuation values for three types of ceiling: Type 1 – Glass Fiber; Type 2 – Mineral Fiber; Type 3 – Solid Gypsum Board. Since Mineral Fiber tile ceilings are the most common construction used in commercial buildings, these values have been used to tabulate Radiated NC levels.

The following table provides the calculation method for the radiated sound total attenuation values based on AHRI Standard 885-2008.

	Octave Band					
	2	3	4	5	6	7
Environmental Effect	2	1	0	0	0	0
Ceiling/Space Effect	16	18	20	26	31	36
<b>Total Attenuation Deduction</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>26</b>	<b>31</b>	<b>36</b>

The ceiling/space effect assumes the following conditions:

1. 5/8" (16) tile, 20 lb/ft<sup>3</sup> (320 kg/m<sup>3</sup>) density.
2. The plenum is at least 3 feet (914) deep.
3. The plenum space is either wide [over 30 feet (9 m)] or lined with insulation.
4. The ceiling has no significant penetration directly under the unit.

### Discharge Sound

Table E1 of Appendix E provides typical discharge sound attenuation values for three sizes of terminal unit.

1. Small box; Less than 300 cfm (142 l/s)  
[Discharge Duct 8" x 8" (203 x 203)].
2. Medium box; 300 – 700 cfm (142 - 330 l/s)  
[Discharge Duct 12" x 12" (305 x 305)].
3. Large box; Greater than 700 cfm (330 l/s)  
[Discharge Duct 15" x 15" (381 x 381)].

These attenuation values have been used to tabulate Discharge NC levels applied against the terminal airflow volume and not terminal unit size.

The following tables provide the calculation method for the discharge sound total attenuation values based on AHRI Standard 885-2008.

Small Box < 300 cfm	Octave Band					
	2	3	4	5	6	7
Environmental Effect	2	1	0	0	0	0
5 ft. (1.5 m) 1" (25) Duct Lining	2	6	12	25	29	18
Branch Power Division (1 outlet)	0	0	0	0	0	0
5 ft. (1.5 m), 8 in. dia. (203) Flex Duct	5	10	19	19	21	12
End Reflection	10	5	20	1	0	0
Space Effect	5	6	7	8	9	10
<b>Total Attenuation Deduction</b>	<b>24</b>	<b>28</b>	<b>39</b>	<b>53</b>	<b>59</b>	<b>40</b>

Medium Box 300 – 700 cfm	Octave Band					
	2	3	4	5	6	7
Environmental Effect	2	1	0	0	0	0
5 ft. (1.5 m) 1" (25) Duct Lining	2	4	10	20	20	14
Branch Power Division (2 outlets)	3	3	3	3	3	3
5 ft. (1.5 m), 8 in. dia. (203) Flex Duct	5	10	19	19	21	12
End Reflection	10	5	2	1	0	0
Space Effect	5	6	7	8	9	10
<b>Total Attenuation Deduction</b>	<b>27</b>	<b>29</b>	<b>40</b>	<b>51</b>	<b>53</b>	<b>39</b>

Large Box >700 cfm	Octave Band					
	2	3	4	5	6	7
Environmental Effect	2	1	0	0	0	0
5 ft. (1.5 m) 1" (25) Duct Lining	2	3	9	18	17	12
Branch Power Division (3 outlets)	5	5	5	5	5	5
5 ft. (1.5 m), 8 in. dia. (203) Flex Duct	5	10	19	19	21	12
End Reflection	10	5	2	1	0	0
Space Effect	5	6	7	8	9	10
<b>Total Attenuation Deduction</b>	<b>29</b>	<b>30</b>	<b>41</b>	<b>51</b>	<b>52</b>	<b>39</b>

1. Flexible duct is non-metallic with 1" (25) insulation.
2. Space effect (room size and receiver location) 2500 ft.<sup>3</sup> (69 m<sup>3</sup>) and 5 ft. (1.5 m) distance from source.

For a complete explanation of the attenuation factors and the procedures for calculating room NC levels, please refer to the acoustical engineering guidelines at the back of this catalog and AHRI Standard 885-2008.