

## Performance Data • NC Level Application Guide

### Model Series 3000

**B**  
SINGLE DUCT TERMINAL UNITS

Inlet Size	Airflow		Min. inlet ΔPs		NC Levels @ Inlet Pressure (ΔPs) shown																	
					DISCHARGE (basic assembly)					DISCHARGE w/ 36" (914) attenuator					RADIATED							
					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	3.0" w.g. 750 Pa	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	3.0" w.g. 750 Pa	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	3.0" w.g. 750 Pa
4	200	94	0.11	27	-	-	-	21	23	25	-	-	-	-	-	-	-	-	21	24	27	
	150	71	0.06	15	-	-	-	-	-	20	-	-	-	-	-	-	-	-	21	22	22	
	100	47	0.03	7	-	-	-	-	-	23	-	-	-	-	-	-	-	-	-	20	24	
	75	35	0.01	2	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	20	
	50	24	0.01	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5	300	142	0.04	10	-	-	21	22	25	29	-	-	-	-	20	23	-	-	21	23	27	
	250	118	0.03	7	-	-	20	22	25	25	-	-	-	-	-	20	-	-	-	22	25	
	200	94	0.02	5	-	-	-	-	21	22	-	-	-	-	-	-	-	-	-	20	22	
	125	59	0.01	2	-	-	-	-	-	22	-	-	-	-	-	-	-	-	-	-	-	
	100	47	0.01	2	-	-	-	-	-	23	-	-	-	-	-	-	-	-	-	-	-	
6	450	212	0.09	22	-	-	21	25	30	31	-	-	-	-	22	23	-	-	22	24	29	
	400	189	0.07	17	-	-	20	25	25	30	-	-	-	-	-	21	-	-	21	23	29	
	300	142	0.04	10	-	-	-	20	22	25	-	-	-	-	-	-	-	-	-	21	25	
	200	94	0.02	5	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	20	
	100	47	0.01	2	-	-	-	-	-	23	-	-	-	-	-	-	-	-	-	-	-	
7	650	307	0.01	2	-	-	-	25	27	30	-	-	-	20	23	-	-	21	24	28	34	
	550	260	0.01	2	-	-	-	22	25	30	-	-	-	-	-	23	-	-	23	27	32	
	335	158	0.01	2	-	-	-	-	20	23	-	-	-	-	-	-	-	-	20	22	25	
	225	106	0.01	2	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	
	110	52	0.01	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	800	378	0.03	7	-	-	20	22	25	29	-	-	-	-	-	21	-	-	22	24	27	30
	700	330	0.02	5	-	-	-	21	25	29	-	-	-	-	-	21	-	-	21	24	25	31
	600	283	0.02	5	-	-	-	21	24	27	-	-	-	-	-	20	-	-	23	25	31	
	400	189	0.01	2	-	-	-	-	20	22	-	-	-	-	-	-	-	-	20	21	25	
	175	83	0.01	2	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	
9	1050	496	0.01	2	-	21	25	29	31	35	-	-	-	-	20	24	-	20	21	24	27	32
	900	425	0.01	2	-	-	22	25	29	34	-	-	-	-	-	-	-	-	-	23	27	32
	675	319	0.01	2	-	-	20	25	27	30	-	-	-	-	-	-	-	-	-	22	25	26
	450	212	0.01	2	-	-	-	-	20	25	-	-	-	-	-	-	-	-	-	20	22	
	225	106	0.01	2	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	
10	1350	637	0.01	2	-	20	25	27	30	35	-	-	20	20	21	24	-	20	24	27	29	32
	1100	519	0.01	2	-	-	21	25	29	32	-	-	-	-	20	21	-	-	21	24	25	31
	825	389	0.01	2	-	-	-	22	25	27	-	-	-	-	-	-	-	-	-	21	23	27
	550	260	0.01	2	-	-	-	-	20	25	-	-	-	-	-	-	-	-	-	-	-	22
	275	130	0.01	2	-	-	-	-	-	23	-	-	-	-	-	-	-	-	-	-	-	-
12	2000	944	0.01	2	-	23	26	29	30	35	-	-	21	23	23	28	23	25	29	31	33	37
	1600	755	0.01	2	-	-	23	26	29	32	-	-	-	20	21	25	-	20	25	27	30	35
	1200	566	0.01	2	-	-	-	22	25	30	-	-	-	-	-	22	-	-	20	24	27	31
	800	378	0.01	2	-	-	-	20	21	25	-	-	-	-	-	22	-	-	-	20	21	25
	400	189	0.01	2	-	-	-	-	22	27	-	-	-	-	-	-	-	-	-	-	-	-
14	2700	1274	0.01	2	-	25	25	30	31	35	-	-	24	25	25	30	24	26	30	34	37	40
	2100	991	0.01	2	-	-	23	26	29	32	-	-	20	21	22	25	-	21	26	31	34	37
	1550	543	0.01	2	-	-	-	23	25	27	-	-	-	-	-	21	-	21	24	28	30	34
	1050	496	0.01	2	-	-	-	-	20	25	-	-	-	-	-	-	-	-	-	24	27	27
	525	248	0.01	2	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-
16	3500	1652	0.01	2	-	23	27	31	32	35	-	-	26	27	27	30	27	30	33	36	39	42
	2800	1322	0.01	2	-	-	25	27	30	35	-	-	23	24	25	29	23	25	29	34	36	40
	2100	991	0.01	2	-	-	20	25	25	30	-	-	-	21	21	25	-	-	26	30	34	36
	1400	661	0.01	2	-	-	-	20	23	26	-	-	-	-	-	-	-	-	21	26	29	31
	700	300	0.01	2	-	-	-	-	22	26	-	-	-	-	-	-	-	-	-	-	-	21
24 x 16	8000	3776	0.62	154	31	39	41	43	46	49	31	31	40	40	45	47	40	43	48	51	54	57
	7000	3304	0.47	117	27	37	40	42	45	47	26	25	39	40	43	46	39	40	47	49	51	55
	6000	2832	0.35	87	26	35	39	40	43	46	25	25	38	39	42	45	36	38	45	47	49	53
	5000	2360	0.24	60	21	34	36	38	40	44	20	20	35	38	40	42	31	36	42	45	47	50
	4000	1888	0.15	37	-	31	35	37	38	40	-	-	35	37	37	40	24	35	39	42	45	47

**Performance Notes:**

1. NC Levels are calculated based on procedures as documented on page B9.
2. Dash (-) in space indicates a NC less than 20.

## Performance Data Explanation

### Sound Power Levels vs. NC Levels

The **Nailor 3000 Series** single duct 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 130-1996 and ARI Standard 880-98. This data is "raw" with no attenuation deductions and includes ARI 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 ARI 885-98 for accurate space sound levels.

### Explanation of NC Levels

Tabulated NC levels are based on attenuation values as outlined in ARI Standard 885-98 "Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets". ARI Standard 885-98, Appendix E provides typical sound attenuation values for air terminal discharge sound and air terminal radiated sound.

As stated in ARI-885-98, 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 A17 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 ARI Standard 885-98.

	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> (313 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 ARI Standard 885-98.

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. (200) Flex Duct	6	10	18	20	21	12
End Reflection	9	5	2	0	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. (200) Flex Duct	6	10	18	20	21	12
End Reflection	9	5	2	0	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. (200) Flex Duct	6	10	18	20	21	12
End Reflection	9	5	2	0	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 ARI Standard 885-98.

# SINGLE DUCT TERMINAL UNITS



## Performance Data • Discharge Sound Power Levels

### Model Series 3000 • Basic Unit

A Participating Corporation  
in the ARI 880  
Certification program.



Inlet Size	Airflow cfm l/s		Min. inlet ΔPs "w.g. Pa		Sound Power Octave Bands @ Inlet Pressure ΔPs shown																																			
					Minimum ΔPs		0.5" w.g. (125Pa)ΔPs					1.0" w.g. (250Pa)ΔPs					1.5" w.g. (375Pa)ΔPs					2.0" w.g. (500Pa)ΔPs					3.0" w.g. (750Pa)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	2	3	4	5	6	7
4	200	94	.11	27	-	46	52	57	48	43	52	56	58	57	49	44	58	50	62	59	53	49	59	62	63	61	56	53	60	63	65	63	58	55	59	64	68	67	62	58
	150	71	.06	15	-	41	46	49	39	35	51	52	54	50	44	38	55	56	57	55	50	47	57	59	60	58	54	51	56	59	63	62	56	53	55	59	66	70	63	58
	100	47	.03	7	-	-	37	37	27	-	47	47	47	46	41	35	49	51	55	53	47	43	49	52	60	60	53	48	48	52	62	65	58	53	46	50	61	68	66	60
	75	35	.01	2	-	-	31	28	-	-	-	45	45	43	37	31	-	46	56	56	49	42	-	46	58	62	56	49	-	45	58	64	62	55	-	45	58	65	66	62
	50	24	.01	2	-	-	-	-	-	-	-	43	49	48	40	31	-	42	56	60	55	46	-	41	57	63	60	53	-	40	55	58	60	55	-	40	55	59	58	56
5	300	142	.04	10	48	55	53	57	49	47	55	59	60	59	51	48	47	63	63	61	53	50	60	64	65	64	56	53	62	67	67	65	59	56	62	69	69	67	62	59
	250	118	.03	7	-	46	48	51	42	40	53	57	56	55	46	42	56	61	60	58	51	48	64	63	62	61	54	51	64	64	63	61	56	53	59	66	66	65	60	57
	200	94	.02	5	-	41	43	44	34	32	51	53	52	50	42	37	54	57	56	54	47	44	56	60	59	57	51	49	56	62	61	60	54	52	57	63	65	55	59	56
	125	59	.01	2	-	-	32	30	-	-	-	46	45	43	36	31	49	53	52	50	43	40	49	54	58	57	51	46	49	54	60	63	56	51	47	52	61	68	64	59
	100	47	.01	2	-	-	29	25	-	-	-	45	42	40	33	30	-	51	54	52	46	40	-	51	58	60	53	47	-	51	59	65	59	53	-	47	58	67	66	60
6	450	212	.09	22	49	51	52	59	48	45	57	60	61	63	53	48	62	63	65	65	64	51	64	65	67	67	58	54	67	70	72	73	64	60	68	71	73	73	71	61
	400	189	.07	17	47	48	48	54	44	40	58	59	60	61	51	46	61	62	63	62	62	50	63	65	66	66	57	54	65	67	68	68	59	56	67	70	70	70	62	60
	300	142	.04	10	-	42	40	46	35	31	56	55	53	53	44	39	59	59	59	58	50	47	61	62	61	61	53	51	62	64	63	63	55	53	63	66	67	66	59	57
	200	94	.02	5	-	-	29	32	-	-	50	48	47	46	38	34	55	54	53	52	45	43	56	57	57	55	49	48	56	58	59	58	52	50	56	59	63	66	58	56
	100	47	.01	2	-	-	-	-	-	-	-	43	41	39	33	31	-	47	53	52	55	43	-	48	56	59	52	48	-	48	58	64	58	53	-	48	58	68	65	60
7	650	307	.01	2	52	55	62	59	51	48	56	58	61	59	52	48	60	61	64	62	57	54	65	65	68	66	61	59	68	68	70	68	63	61	70	70	71	69	65	63
	550	260	.01	2	50	51	56	53	46	42	54	55	56	54	49	44	60	59	62	60	55	52	65	64	66	64	60	57	66	67	68	66	62	59	68	70	72	69	66	63
	335	158	.01	2	46	39	41	38	29	22	52	50	52	50	45	41	57	57	57	56	52	49	58	60	61	59	55	53	59	62	64	61	58	56	60	63	67	65	62	59
	225	106	.01	2	-	-	30	26	-	-	49	46	47	45	41	36	53	54	55	52	48	46	53	56	58	56	52	50	58	56	60	59	55	54	54	57	59	61	59	59
	110	52	.01	2	-	-	-	-	-	-	-	41	41	38	34	30	-	47	47	46	45	43	-	48	51	49	49	47	-	48	52	52	51	51	-	48	54	55	55	56
8	800	378	.03	7	52	53	59	58	51	44	57	60	62	60	52	47	61	63	64	63	57	53	65	65	66	65	60	56	66	66	68	67	62	59	69	70	71	70	66	63
	700	330	.02	5	51	51	56	56	48	40	55	58	59	57	50	45	59	61	62	61	55	52	63	63	65	64	59	56	65	65	66	66	61	59	67	69	70	69	65	62
	600	283	.02	5	49	48	51	50	42	32	55	57	57	56	49	47	59	60	61	60	54	51	62	63	64	63	58	55	64	65	66	65	60	57	66	68	69	68	63	61
	400	189	.01	2	-	38	40	38	29	-	51	50	51	49	42	40	56	56	56	54	50	47	59	60	59	58	54	52	60	62	62	60	56	55	60	64	66	65	60	58
	175	83	.01	2	-	-	-	-	-	-	-	44	42	40	37	34	-	50	50	48	44	40	-	48	52	54	53	49	47	-	48	51	56	64	52	-	48	51	57	58
9	1050	496	.01	2	53	54	60	59	54	48	60	64	64	63	56	51	63	67	67	66	60	56	67	70	69	69	63	59	70	72	71	71	66	62	73	75	75	75	70	66
	900	425	.01	2	50	52	54	54	48	41	58	61	60	59	53	48	63	65	64	63	58	54	67	68	67	67	62	58	74	70	70	69	64	61	71	74	73	72	68	65
	675	319	.01	2	-	44	46	45	39	30	56	57	55	55	49	44	62	62	61	60	55	52	66	67	64	64	60	57	67	68	67	66	62	59	66	70	70	69	65	63
	450	212	.01	2	-	-	33	30	-	-	-	55	51	49	49	44	56	60	59	56	51	48	59	61	60	59	52	52	59	62	63	61	57	55	58	63	66	66	62	60
	225	106	.01	2	-	-	-	-	-	-	-	47	44	43	38	35	50	52	53	51	47	44	50	53	56	55	52	50	54	52	56	57	55	54	48	51	57	60	59	59
10	1350	637	.01	2	51	53	59	59	54	51	62	63	64	64	58	54	65	67	68	67	61	57	67	69	70	70	64	60	74	71	72	72	67	63	71	75	75	75	71	67
	1100	519	.01	2	48	47	52	52	47	43	59	61	60	59	54	49	62	64	64	64	58	54	66	67	67	67	62	58	68	70	69	70	65	61	69	73	72	73	69	66
	825	389	.01	2	-	41	45	44	38	33	55	57	55	54	49	43	61	61	61	60	55	52	64	65	64	64	59	56	65	68	66	66	62	59	66	69	70	69	67	63
	550	260	.01	2	-	-	31	28	-	-	53	51	50	47	44	40	57	58	56	56	52	49	59	61	60	60	56	55	60	62	62	62	59	56	59	62	65	66	62	60
	275	130	.01	2	-	-	-	-	-	-	-	45	43	42	38	34	47	49	50	50	58	44	47	49	52	52	54	51	47	48	53	55	57	56	48	49	55	58	60	60
12	2000	944	.01	2	57	57	62	61	56	53	64	65	66	66	60	55	67	68	69	70	64	59	69	70	72	72	66	61	71	71	73	74	68	63	74	75	76	78	73	69
	1600	755	.01	2	52	49	54	53	48	44	61	61	61	61	55	49	65	65	65	65	59	54	68	68	69	69	64	59	69	70	70	72	66	62	71	73	74	74	70	67
	1200	566	.01	2	47	43	46	44	38	34	57	57	56	55	49	44	62	62	62	62	56	52	65	65	65	66	60	57	66	68	67	68	63	60	69	71	72	71	68	64
	800	378	.01	2	44	36	36	33	28	-	54	53	52	51	45	40	60	59	58	58	53	50	62	63	62	62	58	54	63	64	65	64	61	57	63	66	68	68	65	62
	400	189	.01	2	-	-	-	-	-	-	48	47	46	44	39	36	51	51	52	52	49	45	51	52	55	56	55	52	51</											

# SINGLE DUCT TERMINAL UNITS



## Performance Data • Discharge Sound Power Levels Model Series 3000 • With 3 ft. (914) Integral Attenuator

A Participating  
Corporation  
in the ARI 880  
Certification program.



Inlet Size	Airflow cfm l/s		Min. inlet ΔPs "w.g. Pa		Sound Power Octave Bands @ Inlet Pressure ΔPs shown																																									
					Minimum ΔPs							0.5" w.g. (125Pa) ΔPs							1.0" w.g. (250Pa) ΔPs							1.5" w.g. (375Pa) ΔPs							2.0" w.g. (500Pa) ΔPs							3.0" w.g. (750Pa) 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	2	3	4	5	6	7						
4	200	94	.11	27	-	37	43	43	31	31	46	47	49	43	32	32	54	43	54	45	32	33	56	56	57	47	34	35	58	58	58	48	34	35	57	59	61	52	35	36						
	150	71	.06	15	-	-	37	35	22	23	45	43	45	36	27	26	51	49	49	41	39	31	54	53	53	44	32	33	54	54	56	47	32	33	53	54	59	55	36	36						
	100	47	.03	7	-	-	28	23	-	-	41	38	38	32	24	23	45	44	47	39	26	27	46	46	53	46	31	30	46	47	55	50	34	33	44	45	54	53	39	38						
	75	35	.01	2	-	-	-	-	-	-	-	36	36	29	20	-	-	39	48	42	28	26	-	40	51	48	34	31	-	40	51	49	38	35	-	40	51	50	39	40						
	50	24	.01	2	-	-	-	-	-	-	-	34	40	34	23	-	-	35	48	46	34	30	-	35	50	49	38	35	-	35	48	43	36	35	-	35	48	44	31	34						
5	300	142	.04	10	45	50	48	43	-	-	52	54	55	45	-	-	44	58	58	48	27	27	57	59	60	50	30	30	59	62	62	51	33	34	59	64	63	53	36	37						
	250	118	.03	7	-	41	43	37	-	-	50	52	51	41	-	-	53	56	55	45	25	25	61	58	57	47	28	28	61	59	58	47	30	31	56	61	60	51	34	35						
	200	94	.02	5	-	36	38	30	-	-	48	48	47	36	-	-	51	52	51	41	21	21	53	55	54	43	25	26	53	57	56	46	28	30	54	58	59	41	33	34						
	125	59	.01	2	-	-	27	-	-	-	-	41	40	29	-	-	46	48	47	37	-	-	46	49	53	43	25	23	46	49	55	49	30	29	44	47	55	54	38	37						
	100	47	.01	2	-	-	24	-	-	-	-	40	37	26	-	-	46	49	39	20	-	-	46	53	46	27	24	-	46	54	51	33	31	-	42	52	53	40	38							
6	450	212	.09	22	46	47	48	46	-	-	54	56	57	50	-	-	59	58	60	53	39	30	60	60	62	55	34	32	63	64	67	61	40	38	64	64	68	61	47	39						
	400	189	.07	17	44	44	44	41	-	-	55	55	56	48	-	-	58	57	58	50	37	29	59	60	61	54	33	32	61	61	63	56	35	34	63	63	65	58	38	38						
	300	142	.04	10	-	38	36	33	-	-	53	51	49	40	-	-	56	54	54	46	25	26	57	57	56	49	29	29	58	58	58	51	31	31	59	59	62	54	35	35						
	200	94	.02	5	-	-	25	-	-	-	-	47	44	43	33	-	-	52	49	48	40	20	22	52	52	43	35	26	52	52	54	46	28	28	52	52	58	54	34	34						
	100	47	.01	2	-	-	-	-	-	-	-	39	37	26	-	-	-	42	48	40	30	22	-	43	51	47	28	26	-	42	53	52	34	31	-	41	53	56	41	38						
7	650	307	.01	2	47	50	57	48	30	30	51	53	56	48	31	30	55	56	58	50	35	36	59	59	61	54	39	42	62	62	63	56	41	44	64	64	63	56	43	46						
	550	260	.01	2	45	46	51	42	25	24	49	50	51	43	28	26	55	54	56	48	33	34	59	58	59	52	38	40	60	61	61	54	40	42	62	64	64	56	44	46						
	335	158	.01	2	41	34	36	27	-	-	47	41	42	39	24	23	52	52	51	44	30	31	52	54	54	47	33	36	53	56	57	49	36	39	54	57	59	52	40	42						
	225	106	.01	2	-	-	25	-	-	-	-	44	41	42	34	20	-	48	49	49	40	26	28	47	50	51	44	30	33	52	50	53	47	33	37	48	51	51	48	37	42					
	110	52	.01	2	-	-	-	-	-	-	-	36	36	27	-	-	-	41	41	34	23	25	-	42	44	37	27	30	-	42	45	40	29	34	-	42	46	42	33	39						
8	800	378	.03	7	48	49	55	48	37	27	53	56	58	50	38	30	57	58	59	53	41	36	60	59	60	55	43	38	61	60	62	57	44	41	64	64	64	60	47	45						
	700	330	.02	5	47	47	52	46	34	23	51	54	55	47	36	28	55	56	57	51	39	36	58	57	59	54	42	38	60	59	60	56	43	41	62	63	63	59	46	44						
	600	283	.02	5	45	44	47	40	28	-	51	53	53	46	35	30	55	55	56	50	38	35	57	57	58	53	41	37	59	59	60	55	42	39	61	62	62	58	44	43						
	400	189	.01	2	-	34	36	28	-	-	47	46	47	39	28	23	52	51	51	44	34	31	54	54	53	48	37	34	55	56	50	50	38	37	55	58	59	55	41	40						
	175	83	.01	2	-	-	-	-	-	-	-	40	38	30	23	-	-	45	45	38	28	24	-	43	46	48	32	29	43	45	50	54	34	34	43	45	50	48	38	39						
9	1050	496	.01	2	50	50	57	50	37	34	57	60	61	54	39	27	59	61	63	56	42	42	62	62	64	58	45	44	64	63	65	59	48	47	67	66	68	63	51	51						
	900	425	.01	2	47	48	51	45	31	27	55	57	57	50	36	34	59	59	60	53	40	40	62	60	62	56	44	43	68	61	64	57	46	46	65	65	66	60	49	50						
	675	319	.01	2	-	40	43	36	22	-	53	53	52	46	32	30	58	56	57	50	37	38	61	59	59	53	42	42	61	59	61	54	44	44	60	61	63	57	46	48						
	450	212	.01	2	-	-	30	21	-	-	-	51	48	40	32	30	52	54	55	46	33	34	54	53	55	48	44	37	53	53	57	49	39	40	52	54	59	54	43	45						
	225	106	.01	2	-	-	-	-	-	-	-	43	41	34	21	21	46	46	49	41	29	30	45	45	51	44	44	35	48	43	50	45	37	39	42	42	50	48	40	44						
10	1350	637	.01	2	49	51	57	50	38	39	60	61	62	55	42	42	62	63	64	58	46	44	63	63	64	62	50	48	70	64	67	64	53	51	66	66	70	68	57	54						
	1100	519	.01	2	46	45	50	43	31	31	57	59	58	50	38	37	59	60	60	55	43	41	62	61	61	59	48	46	64	63	64	62	51	49	64	64	67	66	55	53						
	825	389	.01	2	-	39	43	35	22	21	53	55	53	45	33	31	58	57	57	51	40	39	60	59	58	56	45	44	61	61	61	58	48	47	61	60	65	62	53	50						
	550	260	.01	2	-	-	29	-	-	-	-	51	49	41	38	28	28	54	54	52	47	37	36	55	55	54	52	42	43	56	55	57	54	45	44	54	53	60	59	48	47					
	275	130	.01	2	-	-	-	-	-	-	-	43	41	33	22	22	43	45	46	44	40	39	43	43	46	44	40	39	43	41	48	47	43	44	43	40	50	51	46	47						
12	2000	944	.01	2	54	54	57	50	42	41	61	62	61	55	46	44	63	64	64	60	50	48	64	65	67	62	52	50	66	65	68	64	54	52	69	69	71	68	59	58						
	1600	755	.01	2	49	46	49	41	34	33	58	58	56	50	41	38	61	61	60	55	45	43	63	63	64	59	50	48	64	64	65	62	52	51	66	67	69	64	56	56						
	1200	566	.01	2	44	40	41	33	24	23	54	54	51	44	35	33	58	58	57	52	42	41	60	60	60	56	46	46	61	62	62	58	49	49	64	65	67	61	54	53						
	800	378	.01	2	41	33	31	22	-	-	51	50	47	40	31	29	56	55	53	48	39	39	57	58	57	52	44	43	58	58	60	54	47	46	58	60	63	58	51	51						
	400	189	.01	2	-	-	-	-	-	-	-	45	44	41	33	25	25	47	47	47	42	35	34	46	47	50	46	41	41	46	45	51	49	45	47	46	51	52	50	49	53					
14	2700	1274	.01	2	58	57	62	59	49	45	64	64	65	60	52	48	67	66	66	61	53	49	68	67	68	63	62	55	70	67	69	65	58	57	72	71	71	68	62	60						
	2100	991	.																																											

# SINGLE DUCT TERMINAL UNITS



## Performance Data • Radiated Sound Power Levels

### Model Series 3000

A Participating Corporation  
in the ARI 880  
Certification program.



**B**  
SINGLE DUCT TERMINAL UNITS

Inlet Size	Airflow cfm l/s	Min. inlet ΔPs "w.g. Pa		Sound Power Octave Bands @ Inlet Pressure ΔPs shown																																									
				Minimum ΔPs							0.5" w.g. (125Pa) ΔPs							1.0" w.g. (250Pa) ΔPs							1.5" w.g. (375Pa) ΔPs							2.0" w.g. (500Pa) ΔPs							3.0" w.g. (750Pa) 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	2	3	4	5	6	7						
4	200 94	.11	27	-	36	33	32	-	-	-	39	37	38	29	29	49	46	43	37	30	29	53	52	47	40	32	31	53	53	50	42	33	33	54	55	53	47	37	37						
	150 71	.06	15	-	35	29	31	-	-	-	40	36	30	25	23	47	46	40	34	28	26	49	50	47	39	31	30	47	48	48	43	34	32	48	48	48	50	40	37						
	100 47	.03	7	-	-	-	-	-	-	-	37	32	27	-	-	-	43	42	34	27	23	-	44	45	41	32	29	-	43	46	46	36	32	-	42	44	51	43	38						
	75 35	.01	2	-	-	-	-	-	-	-	37	31	26	-	-	-	41	43	37	29	24	-	42	45	42	32	29	49	38	42	45	40	33	-	36	41	48	44	40						
	50 24	.01	2	-	-	-	-	-	-	-	37	38	30	-	-	-	36	41	40	32	27	-	35	40	43	38	31	-	34	38	40	38	33	-	32	36	37	35	37						
5	300 142	.04	10	47	38	32	32	30	27	50	43	37	37	35	31	54	46	44	37	35	31	57	49	47	39	38	33	59	52	49	40	39	35	59	55	53	43	43	39						
	250 118	.03	7	-	35	31	25	23	-	50	39	36	29	28	25	54	45	42	33	32	28	55	48	45	35	35	30	56	51	48	37	37	32	57	53	51	42	41	35						
	200 94	.02	5	-	-	-	-	-	-	50	38	34	27	26	-	52	43	39	30	30	25	52	45	43	32	32	28	53	48	46	36	36	30	53	48	48	44	41	34						
	125 59	.01	2	-	-	-	-	-	-	-	43	29	21	-	-	48	40	38	28	27	-	48	42	42	34	33	27	49	42	44	39	38	29	49	42	44	47	46	37						
	100 47	.01	2	-	-	-	-	-	-	-	33	29	-	-	-	-	39	38	28	26	-	-	40	42	36	34	26	46	40	43	43	41	31	47	41	43	47	46	37						
6	450 212	.09	22	48	44	37	35	30	28	48	47	40	38	32	29	56	50	45	40	34	31	59	53	48	44	36	33	61	55	50	43	39	37	64	58	54	46	42	41						
	400 189	.07	17	-	42	33	33	28	26	49	46	39	35	30	28	56	49	44	38	32	29	59	52	47	40	36	33	62	54	49	42	39	36	65	58	54	45	42	41						
	300 142	.04	10	-	34	27	26	-	-	47	42	35	29	25	-	55	46	40	33	30	28	58	49	44	36	33	32	59	51	47	38	36	34	60	55	51	43	39	39						
	200 94	.02	5	-	-	-	-	-	-	47	36	30	24	-	-	53	43	38	30	29	28	53	45	43	32	31	30	53	47	44	36	32	32	55	49	46	43	37	37						
	100 47	.01	2	-	-	-	-	-	-	-	34	27	-	-	-	-	35	38	33	29	24	45	39	40	37	31	28	47	39	40	42	37	32	46	40	40	46	44	38						
7	650 307	.01	2	48	45	46	38	31	30	49	48	45	37	31	29	54	50	47	40	34	32	60	54	50	44	37	35	64	58	54	48	40	38	67	63	58	51	44	43						
	550 260	.01	2	49	43	41	33	27	25	48	44	40	32	28	26	55	49	45	38	32	30	61	54	49	43	36	33	64	58	52	45	38	36	65	61	57	50	42	40						
	335 158	.01	2	-	-	28	33	-	-	-	40	35	29	24	-	58	48	42	36	30	28	57	51	46	40	32	30	57	52	48	42	34	32	57	53	50	47	39	38						
	225 106	.01	2	-	-	-	-	-	-	-	39	33	28	-	-	50	45	40	34	28	25	52	47	43	38	31	29	51	47	43	41	33	31	52	48	45	42	35	36						
	110 52	.01	2	-	-	-	-	-	-	-	28	25	-	-	-	-	37	33	32	27	24	-	36	32	31	27	26	-	38	35	34	29	29	-	38	35	35	32	36						
8	800 378	.03	7	51	46	40	33	31	28	55	48	44	35	33	29	57	51	48	38	36	32	61	54	50	41	40	35	64	56	53	43	43	38	66	58	55	46	47	41						
	700 330	.02	5	50	43	37	31	29	25	51	47	42	33	31	28	57	51	47	37	36	32	61	53	50	40	39	35	63	55	51	42	41	37	64	59	56	45	44	40						
	600 283	.02	5	-	39	33	29	26	-	50	45	40	31	30	26	57	49	45	35	34	31	60	53	49	38	38	33	61	55	51	40	40	36	63	59	56	46	43	40						
	400 189	.01	2	-	35	26	-	-	-	49	41	36	28	27	24	54	47	41	32	31	30	57	52	46	35	34	32	57	52	47	37	36	34	59	54	51	41	40	39						
	175 83	.01	2	-	-	-	-	-	-	-	36	31	23	23	-	48	41	35	29	29	27	48	42	37	31	31	30	49	42	39	33	33	33	49	42	40	35	37	38						
9	1050 496	.01	2	50	44	44	41	34	32	51	46	46	41	36	33	55	51	47	41	36	34	59	54	50	45	39	37	62	58	53	48	42	40	66	62	51	52	46	44						
	900 425	.01	2	48	40	39	36	30	29	50	45	42	37	32	30	56	50	45	40	35	33	60	54	49	44	39	36	63	58	52	47	41	38	61	61	57	50	44	42						
	675 319	.01	2	47	37	31	29	22	-	49	41	36	31	28	25	55	48	42	37	32	30	58	54	46	41	35	33	60	56	50	44	38	36	60	57	52	47	41	39						
	450 212	.01	2	-	-	24	-	-	-	48	40	33	30	26	24	53	46	39	34	30	29	54	49	43	38	33	31	55	50	46	41	35	34	56	52	48	45	39	38						
	225 106	.01	2	-	-	-	-	-	-	-	37	31	26	-	-	-	40	34	31	28	26	-	41	36	34	30	30	-	41	37	35	32	33	48	42	39	38	35	38						
10	1350 637	.01	2	53	42	41	36	30	23	55	47	46	39	34	29	58	53	50	44	38	34	60	56	53	48	42	37	63	57	54	50	46	41	65	61	57	54	48	45						
	1100 519	.01	2	51	37	35	30	25	-	53	46	42	35	31	27	55	50	47	41	35	31	60	54	50	45	39	36	61	66	51	47	42	39	64	61	55	51	45	43						
	825 389	.01	2	-	33	29	25	-	-	50	43	38	32	29	25	55	48	43	38	33	30	58	52	47	42	37	34	59	54	49	44	38	36	61	57	53	49	43	40						
	550 260	.01	2	-	-	-	-	-	-	-	38	33	29	25	-	51	44	38	34	30	28	53	47	42	38	32	34	56	50	45	41	36	33	57	52	48	45	39	37						
	275 130	.01	2	-	-	-	-	-	-	-	35	29	26	-	-	-	39	33	31	28	-	-	40	36	34	31	29	-	40	36	36	33	32	48	43	40	40	36	36						
12	2000 944	.01	2	54	50	49	44	37	33	58	55	51	46	39	35	61	59	53	49	43	37	64	61	56	52	45	41	65	62	58	55	48	44	68	66	61	58	51	49						
	1600 755	.01	2	52	45	41	36	30	27	56	52	45	40	34	30	59	56	49	46	38	35	61	58	53	49	42	39	62	60	55	51	44	42	65	64	58	55	48	46						
	1200 566	.01	2	47	39	33	29	24	-	52	48	40	36	30	27	55	52	45	41	34	32	58	55	49	45	38	36	60	58	51	48	41	39	61	61	55	52	45	44						
	800 378	.01	2	-	-	-	-	-	-	50	41	34	30	26	-	52	48	41	37	31	30	53	52	45	42	35	33	54	53	47	44	37	36	56	55	50	48	42	42						
	400 189	.01	2	-	-	-	-	-	-	-	37	31	28	-	-	-	42	36	33	29	28	47	45	40	37	32	31	48	47	42	40	35	34	47	44	40	43	40	42						
14	2700 1274	.01	2	57	54	50	46	42	36	59	57	52	48	44	38	61	60	54	49																										

## Performance Data • ARI Certification and Performance Notes Model Series 3000

### ARI Certification Rating Points

Inlet Size	Airflow		Min. inlet ΔPs		Discharge Sound Power Levels @ 1.5" w.g. (375 Pa) ΔPs							Radiated Sound Power Levels @ 1.5" w.g. (375 Pa) ΔPs						
					Octave Band							Octave Band						
	cfm	l/s	"w.g.	Pa	2	3	4	5	6	7	2	3	4	5	6	7		
<b>4</b>	150	71	.06	15	57	59	60	58	54	51	49	50	47	39	31	30		
<b>5</b>	250	118	.03	7	64	63	62	61	54	51	55	48	45	35	35	30		
<b>6</b>	400	189	.07	17	63	65	66	66	57	54	59	52	47	40	36	33		
<b>7</b>	550	260	.01	2	65	64	66	64	60	57	61	54	49	43	36	33		
<b>8</b>	700	330	.02	5	63	63	65	64	59	56	61	53	50	40	39	35		
<b>9</b>	900	425	.01	2	67	68	67	67	62	58	60	54	49	44	39	36		
<b>10</b>	1100	519	.01	2	66	67	67	67	62	58	60	54	50	45	39	36		
<b>12</b>	1600	755	.01	2	68	68	69	69	64	59	61	58	53	49	42	39		
<b>14</b>	2100	991	.01	2	70	68	68	68	63	63	63	61	55	48	44	43		
<b>16</b>	2800	1322	.01	2	70	69	70	69	64	61	65	63	57	50	44	39		
<b>24 x 16</b>	5350	2525	.28	70	81	80	79	77	74	70	72	70	70	65	60	55		



### Performance Notes for Sound Power Levels:

1. Discharge sound power is the noise emitted from the unit discharge into the downstream duct.
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. Minimum inlet ΔPs is the minimum operating pressure requirement of the unit (damper full open) and the difference in static pressure from inlet to discharge of the unit.
6. Data derived from independent tests conducted in accordance with ANSI/ASHRAE Standard 130-1996 and ARI Standard 880-98.

**B**

SINGLE DUCT TERMINAL UNITS