



**Project:** 15-004 - VA Castle Point Relocation of SPS NY  
**Submittal ID:** 00005  
**Spec Section:** 23 36 00

## **Furnish as Corrected**

Review is for general conformance with plans and specifications given in the Contract Documents. Contractor is solely responsible for dimensions, quantities, performance, safety, coordination with other work, and all other requirements of the Contract Documents. Review does not authorize changes to the Contract unless stated specifically in a separate letter or Change Order.

**Reviewed By:** Bob Maxwell  
**Reviewed On:** 7/3/2018  
**Apogee Consulting Group, P.A.**

### COMMENTS:

Provide Foil Faced insulation with all edges sealed with metal Z-strips per Section 23 3600 Paragraph 2.2,D, 1.

# LETTER OF TRANSMITTAL

Nordstrom Contracting  
 Consulting Corp  
 36 Thiells Mt. Ivy Rd.  
 Pomona, NY 10970

JUNE 26, 2018  
 Project:VA620A4-17-111  
 Relocate SPS

To: Apogee Consulting Group, PA Attention: Cullen S. Keen AIA

1151 Kildaire Farm Road

Cary, NC 27511

**HVAC EQUIPMENT SUBMITTAL # 1**  
**(AS NOTED IN "Description" BELOW)**

Gentlemen;

We are sending you  Herewith  Delivered by Hand  Under Separate Cover  Via **ELECTRONIC**

Plans  Prints  Shop Dwgs  Samples  Specifications  Other **Product Documents**

Copies	Item	# Pages	Description
1	1	57	TRANE AHU & AIR-COOLED CONDENSING UNITS
1	2	22	LG ELECTRONICS - SPLIT SYSTEM
1	3	18	PURE HUMIDIFIER CO. - STEAM HEAT HUMIDIFIER
1	4	6	LOREN COOK - CENTRIFRUGAL WALL FANS
1	5	9	NAILOR INDUSTRIES - SINGLE DUCT VAV UNITS
1	6	12	NAILOR INDUSTRIES - REGISTERS, GRILLS & DIFFUSERS
1	7	9	AIRFLOW DIRECTION INC. - VISUAL PRESSURE INDICATOR
			THIS ATTACHED IS APPROVED FOR SUBMITTAL BY NORDSTROM CONTRACTING

The Above Listed Items are transmitted as indicted below:

Return By Date: ASAP

Approval  As Requested  For Your Use  For Construction

Approved As Noted  Submit \_\_\_\_\_ Copies for Record Distribution

Returned for Correction, Revise & Resubmit  Coordination (Should the attached be in conflict with your work, advise immediately)

For Your Files  Other: \_\_\_\_\_

For Bids Due \_\_\_\_\_

Remarks: \_\_\_\_\_

Copies W ( ) W/O()

Enclosures: Timothy Starks

NCC FIELD FILE

\_\_\_\_\_  
 \_\_\_\_\_

Oscar Nordstrom, President



June 13, 2018

Mr. Michael Houghton  
M. H. Heating & Cooling, LLC  
Wallkill, New York

Re: **Submittal for Approval**  
**VA Hudson Valley Healthcare Systems**  
**Relocate SPS**  
**Castle Point, NY**

Dear Mr. Houghton:

In reference to the above project, here is a set of submittal drawings for:

**Nailor Industries – Single Duct VAV Units – Spec 233600**

The equipment in this submittal is being held for construction, pending your approval and release. Please return one set of submittal drawings to our office.

We thank you for your order and appreciate this opportunity to be of service.

Regards,

R.F. Peck Co., Inc.

A handwritten signature in black ink, appearing to read "Kyle Mead". The signature is fluid and cursive, written over a light blue horizontal line.

Kyle Mead  
Enclosures



22 Computer Drive - West  
Albany, NY 12205  
Phone (518) 869-3541

## Equipment Submittal

Project	VA Hudson Valley Healthcare Systems Relocate SPS Castle Point, NY
Engineer	RPA Design Charlotte, NC
Contractor	M. H. Heating & Cooling, LLC Wallkill, NY
Submitted by	Kyle Mead/dk R. F. Peck Co., Inc. Albany, New York Date: June 12, 2018

Manufacturer's Representatives for  
Heating, Ventilating and  
Air Conditioning Equipment

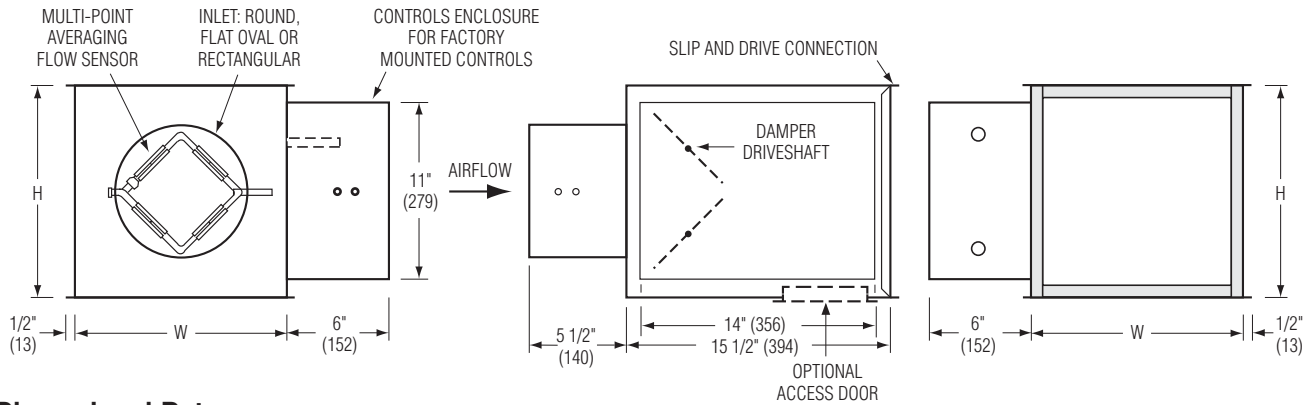
Contents: Nailor Industries – Single Duct VAV Units – Spec 233600

Note: Based on Contract Drawings Dated 5.5.2017





**SINGLE DUCT TERMINAL UNIT**  
 DIGITAL ~~OR ANALOG~~ ELECTRONIC CONTROLS  
 PRESSURE INDEPENDENT  
 CONSTANT OR VARIABLE VOLUME  
 MODELS: D3001 ~~AND A3001~~



**Dimensional Data**

Unit Size	Airflow Range * cfm (l/s)	W	H	Inlet Size
4	0 – 225 (0 – 106)	10 (254)	10 (254)	3 7/8 (98) Round
5	0 – 400 (0 – 189)	10 (254)	10 (254)	4 7/8 (124) Round
6	0 – 550 (0 – 260)	10 (254)	10 (254)	5 7/8 (149) Round
7	0 – 800 (0 – 378)	12 (305)	12 1/2 (318)	6 7/8 (175) Round
8	0 – 1100 (0 – 519)	12 (305)	12 1/2 (318)	7 7/8 (200) Round
9	0 – 1400 (0 – 661)	14 (356)	12 1/2 (318)	8 7/8 (225) Round
10	0 – 1840 (0 – 868)	14 (356)	12 1/2 (318)	9 7/8 (251) Round
12	0 – 2500 (0 – 1180)	18 (457)	12 1/2 (318)	12 15/16 x 9 13/16 (329 x 249) Oval
14	0 – 3125 (0 – 1475)	24 (610)	12 1/2 (318)	16 1/16 x 9 13/16 (408 x 249) Oval
16	0 – 3725 (0 – 1758)	28 (711)	12 1/2 (318)	19 3/16 x 9 13/16 (487 x 249) Oval
24 x 16	0 – 8330 (0 – 3931)	38 (965)	18 (457)	23 7/8 x 15 7/8 (606 x 403) Rect.

\* Maximum airflow limit is based upon 1.5" w.g. (373 Pa) max. differential pressure signal from Diamond Flow Sensor.

**Standard Features:**

- 22 ga. (0.86) zinc coated steel casing, mechanically sealed, low leakage construction.
- 16 ga. (1.63) corrosion-resistant steel inclined opposed blade damper with extruded PVC seals (single blade on size 4, 5, 6). 45° rotation, CW to close. Tight close-off. Damper leakage is less than 2% of the terminal rated airflow at 3" w.g. (750 Pa).
- 1/2" (13) dia. plated steel drive shaft. An indicator mark on the end of the shaft shows damper position.
- Multi-point averaging Diamond Flow Sensor. Aluminum construction. Supplied with balancing tees.
- Rectangular discharge with slip and drive cleat duct connection.
- Full NEMA 1 type controls enclosure for factory mounted controls.

- 3/4" (19), dual density insulation, exposed edges coated to prevent air erosion. Meets the requirements of NFPA 90A and UL 181.

- Right-hand controls location is standard (shown) when looking in direction of airflow. Optional left hand controls mounting is available.

- Model D3001 can be installed horizontally, vertical or at any angle. Operation is not affected by position.

**Controls:**

- Digital (Nailor EZvav).
  - Digital (by others).
  - Analog (by Nailor).
- See separate submittal.

**Options and Accessories:**

- Steri-liner.
  - Fiber-free liner.
  - Solid metal liner.
  - Perforated Metal Liner.
  - 1" (25) liner.
  - Bottom access door.
  - 24 VAC control transformer.
  - Toggle disconnect switch.
  - Hanger brackets.
  - Controls enclosure for field mounted controls.
  - Dust tight enclosure seal.
  - 20 ga. (1.00) construction.
- Seismic Certification:
- SSI (Standard)
  - OSHPD
  - Special Features: \_\_\_\_\_

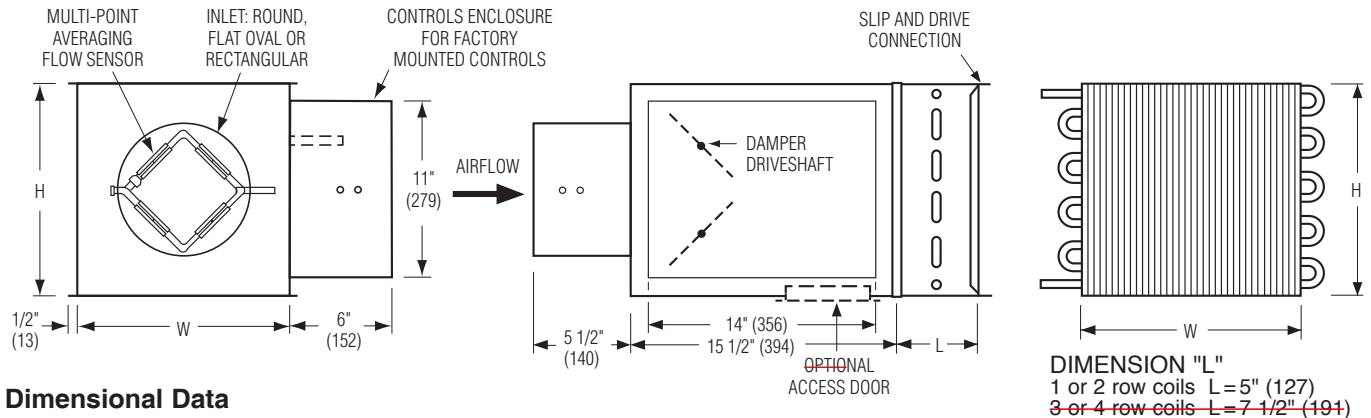


<b>SCHEDULE TYPE:</b>	
<b>PROJECT:</b>	
<b>ENGINEER:</b>	
<b>CONTRACTOR:</b>	

<b>DATE</b>	<b>B SERIES</b>	<b>SUPERSEDES</b>	<b>DRAWING NO.</b>
3 - 12 - 18	3000	7 - 17 - 17	D3001-1



**SINGLE DUCT TERMINAL UNIT WITH  
HOT WATER REHEAT • PRESSURE INDEPENDENT  
DIGITAL ~~OR ANALOG~~ CONTROLS  
CONSTANT OR VARIABLE VOLUME  
MODELS: D30RW ~~OR A30RW~~**



**Dimensional Data**

Unit Size	Airflow Range* cfm (l/s)	W	H	Inlet Size	Coil Connections			
					1 Row	2 Row	3 Row	4 Row
4	0 – 225 (0 – 106)	10 (254)	10 (254)	3 7/8 (98) Round	1/2 (13)	7/8 (22)	7/8 (22)	7/8 (22)
5	0 – 400 (0 – 189)	10 (254)	10 (254)	4 7/8 (124) Round	1/2 (13)	7/8 (22)	7/8 (22)	7/8 (22)
6	0 – 550 (0 – 260)	10 (254)	10 (254)	5 7/8 (149) Round	1/2 (13)	7/8 (22)	7/8 (22)	7/8 (22)
7	0 – 800 (0 – 378)	12 (305)	12 1/2 (318)	6 7/8 (175) Round	1/2 (13)	7/8 (22)	7/8 (22)	7/8 (22)
8	0 – 1100 (0 – 519)	12 (305)	12 1/2 (318)	7 7/8 (200) Round	1/2 (13)	7/8 (22)	7/8 (22)	7/8 (22)
9	0 – 1400 (0 – 661)	14 (356)	12 1/2 (318)	8 7/8 (225) Round	1/2 (13)	7/8 (22)	7/8 (22)	7/8 (22)
10	0 – 1840 (0 – 868)	14 (356)	12 1/2 (318)	9 7/8 (251) Round	1/2 (13)	7/8 (22)	7/8 (22)	7/8 (22)
12	0 – 2500 (0 – 1180)	18 (457)	12 1/2 (318)	12 15/16 x 9 13/16 (329 x 249) Oval	1/2 (13)	7/8 (22)	7/8 (22)	7/8 (22)
14	0 – 3125 (0 – 1475)	24 (610)	12 1/2 (318)	16 1/16 x 9 13/16 (408 x 249) Oval	1/2 (13)	7/8 (22)	7/8 (22)	7/8 (22)
16	0 – 3725 (0 – 1758)	28 (711)	12 1/2 (318)	19 3/16 x 9 13/16 (487 x 249) Oval	7/8 (22)	7/8 (22)	7/8 (22)	7/8 (22)
24 x 16	0 – 8330 (0 – 3931)	38 (965)	18 (457)	23 7/8 x 15 7/8 (606 x 403) Rect.	7/8 (22)	7/8 (22)	1 3/8 (35)	1 3/8 (35)

\* Maximum airflow limit is based upon 1.5" w.g. (373 Pa) max. differential pressure signal from Diamond Flow Sensor.

**Standard Features:**

- 22 ga. (0.86) zinc coated steel casing, mechanically sealed, low leakage construction.
- 16 ga. (1.61) corrosion-resistant steel inclined opposed blade damper with extruded PVC seals (single blade on size 4, 5, 6). 45° rotation, CW to close. Tight close-off. Damper leakage is less than 2% of the terminal rated airflow at 3" w.g. (750 Pa).
- 1/2" (13) dia. plated steel drive shaft. An indicator mark on the end of the shaft shows damper position.
- Multi-point averaging Diamond Flow Sensor. Aluminum construction. Supplied with balancing tees.
- Rectangular discharge with slip and drive cleat duct connection.
- Full NEMA 1 type controls enclosure for factory mounted controls.
- 3/4" (19), dual density insulation, exposed edges coated to prevent air erosion. Meets the requirements of NFPA 90A and UL 181.

- Right-hand controls location is standard (shown) when looking in direction of airflow. Optional left hand controls mounting is available.

- Model D30RW can be installed horizontally, vertical or at any angle. Operation is not affected by position.

**Hot Water Coil Section:**

- 1/2" (13) Copper tubes and aluminum ripple fins, 10 per inch.
- 1, 2, 3 or 4 row.
- Left or right hand connection. Determined by looking in direction of airflow (RH illustrated).
- 1/2" (13), 7/8" (22) or 1 3/8" (35) O.D. male solder sweat connections.

**Controls:**

- Digital (Nailor EZvav).
  - Digital (by others).
  - Analog (by Nailor).
- See separate submittal.



**Options and Accessories:**

- Steri-liner.
  - Fiber-free liner.
  - Solid metal liner.
  - 1" (25) liner.
  - Bottom access door.
  - 24 VAC Control transformer.
  - Toggle disconnect switch.
  - Hanger brackets.
  - Controls enclosure for field mounted controls.
  - Dust tight enclosure seal.
- Seismic Certification:
- SSI (Standard)
  - OSHPD
  - Special Features: \_\_\_\_\_



**SCHEDULE TYPE:**

**PROJECT:**

**ENGINEER:**

**CONTRACTOR:**

Page 1 of 2.  
Dimensions are in inches (mm).

DATE	B SERIES	SUPERSEDES	DRAWING NO.
3 - 13 - 18	3000	7 - 27 - 17	D30RW-1



**TERMINAL UNITS  
LINER OPTIONS  
TYPE: FIBERGLASS DUAL DENSITY INSULATION**

**DESCRIPTION**

Tuf-Skin dual-density fiber glass blankets are the most widely-used insulation for HVAC equipment applications. The combination of high-density skin and low-density core provides high acoustical values in the high and low frequency ranges normally encountered in HVAC equipment.

**Application.** Tuf-Skin provides effective thermal and acoustical control in air conditioning and heating equipment.

**Advantage.** The porosity and inherent structure of the flame-attenuated glass fiber blankets are highly effective in reducing thermal transfer.

Tuf-Skin readily withstand damage from mechanical abrasion during assembly and from air erosion in service.

**INSULATION CHARACTERISTICS**

- Material: Dual density fiberglass, surface treated to prevent erosion.
- Thickness: 3/4" (19).
- Density: 4.0 lb/cu.ft. (64 kg/m<sup>3</sup>) skin, 1.5 lb/cu.ft. (24 kg/m<sup>3</sup>) core.
- Thermal Conductance: 0.36 BTU / hr-ft<sup>2</sup>-°F @ 75°F (2.04 W / m<sup>2</sup>-°C @ 24°C).
- Thermal Resistance: 2.8 hr-ft<sup>2</sup>-°F / BTU (0.74 m<sup>2</sup>-°C / W).  
(Effective R-Value)
- Flame Spread: 25
- Smoke Density: 50

**MAXIMUM AIR VELOCITY**

3,600 FPM (1,097 mpm). Tested at two and one-half times (9,000 fpm) (2,743 mpm) the maximum recommended service velocity. Meets the erosion requirements of UL 181.

**STANDARD AND CODE COMPLIANCE**

- ASTM E84 and UL 723 and CAN/ULC S102-M88 Flame/Smoke (25/50)
- NFPA 90A and 90B

<b>SCHEDULE TYPE</b>				
<b>PROJECT</b>				
<b>ENGINEER</b>	<b>DATE</b>	<b>B SERIES</b>	<b>SUPERSEDES</b>	<b>DRAWING NO.</b>
<b>CONTRACTOR</b>	8 - 19 - 16	VAV.ACC.	9 - 5 - 13	VAV - FDD

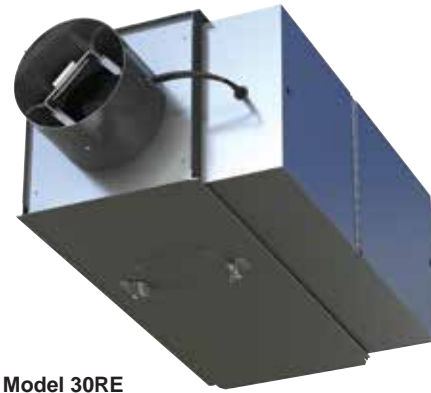


## Recommended Airflow Ranges For Single Duct Pressure Independent Terminal Units

The recommended airflow ranges below are for 3000 Series single duct terminal units with pressure independent controls and are presented as ranges for total and controller specific minimum and maximum airflow. Airflow ranges are based upon maintaining reasonable sound levels and controller limits using Nailor's Diamond Flow Sensor as the airflow measuring device. For a given unit size, the minimum, auxiliary minimum (where applicable) and the maximum flow setting must be within the range limits to ensure pressure independent operation, accuracy and repeatability.

Minimum airflow limits are based upon .02" w.g. (5 Pa) differential pressure signal from Diamond Flow Sensor on analog/ digital controls and .03" (7.5) for pneumatic controllers. This is a realistic low limit for many transducers used in the digital controls industry. Check your controls supplier for minimum limits. Setting airflow minimums lower, may cause damper hunting and result in a failure to meet minimum ventilation requirements. Factory settings will therefore not be made outside these ranges; however, a minimum setting of zero (shut-off) is an available option on pneumatic units. Where an auxiliary setting is specified, the value must be greater than the minimum setting.

The high end of the tabulated Total Airflow Range on pneumatic and analog electronic controls represents the Diamond Flow Sensor's differential pressure reading at 1" w.g. (249 Pa). The high end airflow range for digital controls is represented by the indicated transducer differential pressure.



Model 30RE

ASHRAE 130 "Performance Rating of Air Terminals" is the method of test for the certification program. The "standard rating condition" (certification rating point) airflow volumes for each terminal unit size are tabulated below per AHRI Standard 880. These air volumes equate to an approximate inlet velocity of 2000 fpm (10.2 m/s).

When digital or other controls are mounted by Nailor, but supplied by others, these values are guidelines only, based upon experience with the majority of controls currently available. Controls supplied by others for factory mounting are configured and calibrated in the field. Airflow settings on pneumatic and analog controls supplied by Nailor are factory preset when provided.

### Imperial Units, Cubic Feet per Minute

Unit Size	Inlet Type	Total Airflow Range, cfm	Airflow at 2000 fpm Inlet Velocity (nom.), cfm	Range of Minimum and Maximum Settings, cfm							
				Pneumatic 3000 Controller		Analog Electronic Controls		Digital Controls			
				Transducer Differential Pressure ( "w.g.)							
				Min.	Max.	Min.	Max.	Min.	1.0	1.25	1.5
4	Round	0 – 225	150	30	180	25	180	25	180	200	225
5		0 – 400	250	55	325	45	325	45	325	360	400
6		0 – 550	400	80	450	65	450	65	450	500	550
7	Round	0 – 800	550	115	650	95	650	95	650	725	800
8		0 – 1100	700	155	900	125	900	125	900	1000	1100
9		0 – 1400	900	200	1150	165	1150	165	1150	1285	1400
10		0 – 1840	1100	260	1500	215	1500	215	1500	1675	1840
12	Flat Oval	0 – 2500	1600	355	2050	290	2050	290	2050	2300	2500
14		0 – 3125	2100	440	2550	360	2550	360	2550	2850	3125
16		0 – 3725	2800	525	3040	430	3040	430	3040	3400	3725
24 x 16	Rect.	0 – 8330	5350	1180	6800	960	6800	960	6800	7600	8330

### Metric Units, Liters per Second

Unit Size	Inlet Type	Total Airflow Range, l/s	Airflow at 10.2 m/s Inlet Velocity (nom.), l/s	Range of Minimum and Maximum Settings, l/s							
				Pneumatic 3000 Controller		Analog Electronic Controls		Digital Controls			
				Transducer Differential Pressure ( Pa )							
				Min.	Max.	Min.	Max.	Min.	249	311	374
4	Round	0 – 106	71	14	85	12	85	12	85	94	106
5		0 – 189	118	26	153	21	153	21	153	170	189
6		0 – 260	189	38	212	31	212	31	212	236	260
7	Round	0 – 378	260	54	307	45	307	45	307	342	378
8		0 – 519	330	73	425	59	425	59	425	472	519
9		0 – 661	425	94	543	78	543	78	543	606	661
10		0 – 868	519	123	708	101	708	101	708	790	868
12	Flat Oval	0 – 1180	755	168	967	137	967	137	967	1085	1180
14		0 – 1475	991	208	1203	170	1203	170	1203	1345	1475
16		0 – 1758	1321	248	1435	203	1435	203	1435	1604	1758
24 x 16	Rect.	0 – 3931	2525	557	3209	453	3209	453	3209	3586	3931

## Performance Data • NC Level Application Guide

### 3000 Series • Basic Unit

#### Fiberglass Liner

**SINGLE DUCT TERMINAL UNITS**

Inlet Size	Airflow cfm / s		Min. inlet ΔPs "w.g. Pa		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	225	106	0.53	133	21	-	30	33	34	36	-	-	29	33	33	34	-	*	-	23	25	29
	200	94	0.43	106	20	25	29	33	34	35	-	25	29	33	33	34	-	-	-	21	24	28
	150	71	0.10	25	-	21	26	29	30	30	-	-	26	28	29	30	-	-	-	21	22	22
	100	47	0.11	28	-	-	21	21	21	21	-	-	20	-	-	20	-	-	-	-	20	23
	75	35	0.06	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
5	400	189	0.19	48	-	23	28	30	33	35	-	20	26	30	31	33	-	-	-	23	26	31
	300	142	0.11	28	-	23	29	30	33	35	-	23	29	30	33	34	-	-	-	21	23	28
	250	118	0.05	12	-	23	28	31	33	34	-	-	28	30	33	34	-	-	-	-	22	25
	200	94	0.05	13	-	21	25	28	29	30	-	20	25	25	28	29	-	-	-	-	20	22
	125	59	0.02	5	-	-	20	21	21	21	-	-	20	20	20	20	-	-	-	-	-	-
6	550	260	0.01	2	-	25	29	33	36	38	-	20	25	30	33	34	-	-	20	25	28	31
	450	212	0.01	2	-	23	28	33	35	36	-	20	25	30	31	33	-	-	-	22	24	29
	400	189	0.01	2	-	20	25	30	31	33	-	-	23	26	29	30	-	-	-	21	25	29
	200	94	0.01	2	-	-	21	24	24	24	-	-	21	23	24	24	-	-	-	-	-	20
	100	47	0.01	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	800	378	0.01	2	-	24	28	31	35	38	-	23	26	30	34	36	25	-	22	28	33	37
	650	307	0.01	2	-	23	28	33	37	37	-	23	26	31	34	36	20	-	21	24	29	34
	550	260	0.01	2	-	-	24	30	31	34	-	-	24	28	30	33	-	-	-	24	28	32
	335	158	0.01	2	-	-	21	25	25	26	-	-	20	24	24	25	-	-	-	20	22	24
	225	106	0.01	2	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-
8	1100	519	0.01	2	25	28	31	34	37	40	24	26	29	31	36	39	-	20	25	29	31	35
	900	425	0.01	2	20	24	29	33	36	38	-	23	26	31	34	37	-	-	23	26	29	33
	700	330	0.01	2	-	21	26	31	35	38	-	-	25	30	33	35	-	-	21	24	26	31
	600	283	0.01	2	-	-	25	30	34	36	-	-	23	29	30	31	-	-	-	23	25	31
	400	189	0.01	2	-	-	-	25	26	28	-	-	-	24	24	24	-	-	-	20	21	25
9	1400	661	0.01	2	23	28	31	34	37	39	21	28	30	33	36	39	20	20	23	28	34	38
	1250	590	0.01	2	-	25	29	33	35	38	-	24	29	31	35	37	-	20	22	26	33	36
	900	425	0.01	2	-	-	24	28	31	35	-	-	23	28	30	33	-	-	-	23	28	31
	675	319	0.01	2	-	-	23	28	30	33	-	-	23	28	30	31	-	-	-	20	25	26
	450	212	0.01	2	-	-	-	23	24	25	-	-	-	21	23	24	-	-	-	-	20	22
10	1850	873	0.01	2	24	31	34	36	38	39	24	30	31	34	36	38	22	22	26	31	33	37
	1650	779	0.01	2	20	28	31	35	37	39	-	28	31	33	35	37	-	20	25	30	31	36
	1100	519	0.01	2	-	21	25	28	31	35	-	-	21	25	29	31	-	-	21	24	25	31
	825	389	0.01	2	-	-	20	25	29	31	-	-	-	21	25	29	-	-	-	21	23	28
	550	260	0.01	2	-	-	-	21	24	26	-	-	-	-	21	23	-	-	-	-	-	22
12	2500	1180	0.01	2	-	31	34	35	38	40	-	31	33	35	36	38	29	28	31	34	35	40
	2000	944	0.01	2	-	28	30	31	35	37	-	26	28	30	31	34	22	25	29	31	33	37
	1600	755	0.01	2	-	23	26	29	33	35	-	20	23	26	29	33	-	20	25	28	30	35
	1200	566	0.01	2	-	-	21	25	29	33	-	-	-	23	25	29	-	-	20	24	28	31
	800	378	0.01	2	-	-	-	-	21	24	-	-	-	-	-	21	-	-	-	20	21	24
14	3125	1475	0.01	2	23	31	34	35	38	39	20	31	33	34	36	38	29	28	31	36	39	43
	2700	1274	0.01	2	-	29	30	33	35	37	-	28	29	31	34	36	24	25	30	34	37	40
	2100	991	0.01	2	-	21	25	29	33	36	-	21	24	28	30	34	-	21	26	31	34	37
	1550	731	0.01	2	-	-	21	26	30	33	-	-	20	25	26	29	-	-	24	28	30	34
	1050	495	0.01	2	-	-	-	21	24	26	-	-	-	21	23	24	-	-	-	24	26	28
16	3725	1758	0.03	8	-	29	31	33	35	38	-	28	30	31	35	38	30	30	33	37	40	44
	3500	1652	0.03	8	-	26	29	31	34	36	-	24	28	31	34	35	28	30	33	36	39	43
	2800	1321	0.02	6	-	23	26	29	31	34	-	21	25	29	30	33	23	24	29	34	36	40
	2100	991	0.02	4	-	-	20	25	26	30	-	-	-	23	25	28	-	-	26	30	34	36
	1400	661	0.01	3	-	-	-	-	21	24	-	-	-	-	-	23	-	-	21	26	29	31
24 x 16	8330	3931	0.02	5	49	49	49	52	53	53	48	48	48	50	52	52	44	44	49	51	54	57
	7000	3303	0.02	4	45	45	45	48	49	50	44	44	44	46	48	49	40	41	47	49	51	55
	6000	2831	0.01	2	40	41	43	45	46	48	39	40	41	44	45	46	36	39	45	47	49	53
	5350	2525	0.01	2	35	38	40	43	45	46	34	36	39	41	44	45	32	38	44	46	48	51
	4000	1888	0.01	2	25	31	35	38	40	43	24	30	34	36	39	41	24	35	39	43	45	47
3000	1416	0.01	2	-	24	29	33	35	38	-	23	28	31	34	37	20	31	36	38	40	44	

#### Performance Notes:

1. NC Levels are calculated based on procedures as outlined on page A72.
2. Dash (-) in space indicates a NC less than 20.
3. Asterisk (\*) in space indicates that the minimum inlet static pressure requirement is greater than 0.5" w.g. (125 Pa) at rated airflow.

## Performance Data • Radiated Sound Power Levels

### 3000 Series • Basic Unit

### Fiberglass Liner



Inlet Size	Airflow		Min. inlet ΔPs		Sound Power Octave Bands @ Inlet Pressure (ΔPs) shown																																									
					Minimum ΔPs							0.5" wg (125Pa) ΔPs							1.0" wg (250Pa) ΔPs							1.5" wg (375Pa) ΔPs							2.0" wg (500Pa) ΔPs							3.0" wg (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	225	106	0.53	133	-	37	33	33	-	-	*	*	*	*	*	*	51	48	45	38	32	30	55	54	49	42	33	32	55	55	51	44	35	33	56	57	54	48	39	38						
	200	94	0.43	106	-	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	0.10	25	-	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	0.11	28	-	-	-	-	-	-	-	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	0.06	16	-	-	-	-	-	-	-	37	31	26	-	-	-	41	43	37	29	24	-	42	45	42	32	29	-	38	42	45	40	33	-	36	41	48	44	40						
5	400	189	0.19	48	49	41	34	36	34	27	52	45	40	40	39	36	56	48	45	38	37	34	60	52	49	40	39	34	63	56	51	42	40	36	63	59	56	45	44	40						
	300	142	0.11	28	47	38	32	32	30	27	50	43	37	35	33	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	0.05	12	-	35	31	25	23	-	50	40	36	32	30	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	0.05	13	-	-	-	-	-	-	50	38	34	27	25	-	52	43	39	31	30	25	52	45	43	32	32	28	53	48	46	36	36	30	53	48	48	44	41	34						
	125	59	0.02	5	-	-	-	-	-	-	-	33	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						
6	550	260	0.01	2	48	47	41	39	31	29	49	48	42	41	35	31	57	52	46	41	35	32	62	55	49	45	36	34	64	58	51	45	40	38	67	61	56	48	44	43						
	450	212	0.01	2	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	0.01	2	-	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	64	58	54	45	42	41						
	200	94	0.01	2	-	-	-	-	-	-	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	0.01	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	800	378	0.01	2	50	47	51	37	36	36	50	48	45	37	33	33	57	52	48	40	34	32	63	58	53	46	38	35	68	62	56	49	40	38	70	66	61	54	45	42						
	650	307	0.01	2	49	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	0.01	2	48	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	0.01	2	-	-	28	33	-	-	-	40	35	29	24	-	52	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	0.01	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						
8	1100	519	0.01	2	52	50	45	37	34	33	57	51	46	37	35	32	60	54	51	40	38	33	65	57	53	43	42	36	67	60	56	45	44	39	70	63	60	49	48	42						
	900	425	0.01	2	51	47	40	34	31	29	56	50	45	37	34	31	58	53	49	39	37	33	63	56	51	42	42	36	65	58	54	44	44	39	68	60	56	47	48	42						
	700	330	0.01	2	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	0.01	2	-	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	44	43	40						
	400	189	0.01	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						
9	1400	661	0.01	2	51	46	46	44	37	35	52	47	46	41	38	35	57	53	49	42	37	35	64	58	53	47	41	37	66	63	57	50	43	40	69	67	61	54	47	44						
	1250	590	0.01	2	51	46	45	42	35	35	51	46	46	41	37	34	56	52	48	42	36	34	63	57	52	46	40	37	65	62	56	50	43	40	68	65	60	53	46	44						
	900	425	0.01	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	64	61	56	50	44	42						
	675	319	0.01	2	47	37	31	29	22	-	49	41	36	31	28	25	55	48	42	37	32	30	58	52	46	41	35	33	60	56	50	44	38	36	60	57	52	47	41	39						
	450	212	0.01	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						
10	1850	873	0.01	2	57	47	48	40	36	27	58	49	48	40	37	31	60	55	52	45	39	35	64	59	56	50	43	39	65	62	57	52	46	42	68	66	61	56	49	46						
	1650	779	0.01	2	55	45	45	40	35	26	57	49	46	39	36	30	59	54	51	44	38	34	63	58	55	49	42	38	64	60	56	51	45	41	67	65	60	55	48	45						
	1100	519	0.01	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	56	51	47	42	39	64	61	55	51	45	43						
	825	389	0.01	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	39	37	61	57	53	49	43	41						
	550	260	0.01	2	-	-	-	-	-	-	-	38	33	29	25	-	51	44	38	34	30	28	53	47	42	38	34	32	56	50	45	41	36	35	57	52	48	45	40	38						
12	2500	1180	0.01	2	57	55	54	50	42	36	60	57	53	46	41	38	63	61	54	50	42	39	66	63	57	53	45	41	67	64	59	55	48	44	70	69	63	59	52	50						
	2000	944	0.01	2	54	50	48	44	37	33	58	55	51	46	39	35	61	59	53	49	42	37	64	61	56	52	45	41	65	62	58	55	48	44	68	66	61	58	51	49						
	1600	755	0.01	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	0.01	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	0.01	2	-	-	-	-	-	-	50	41	34	30	26	-	52	48	41	37	31	30	5																							