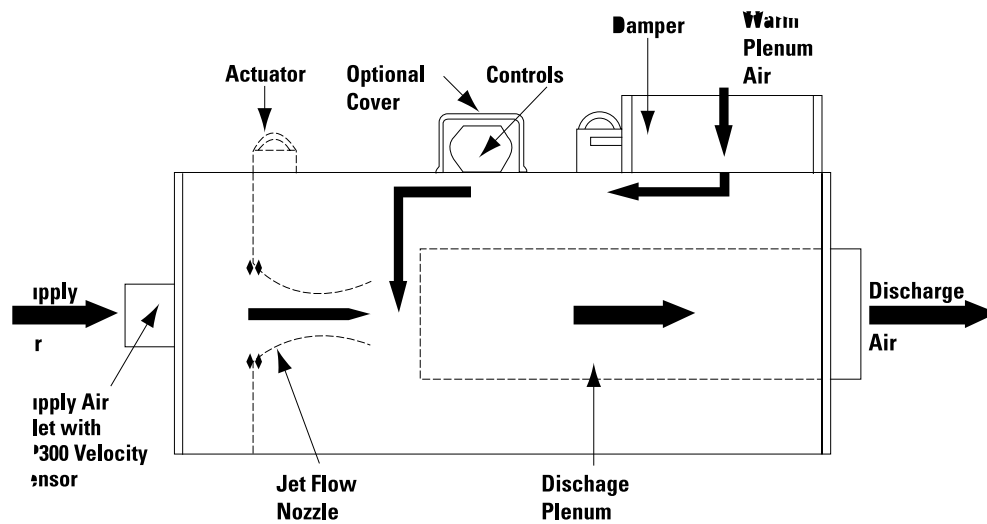
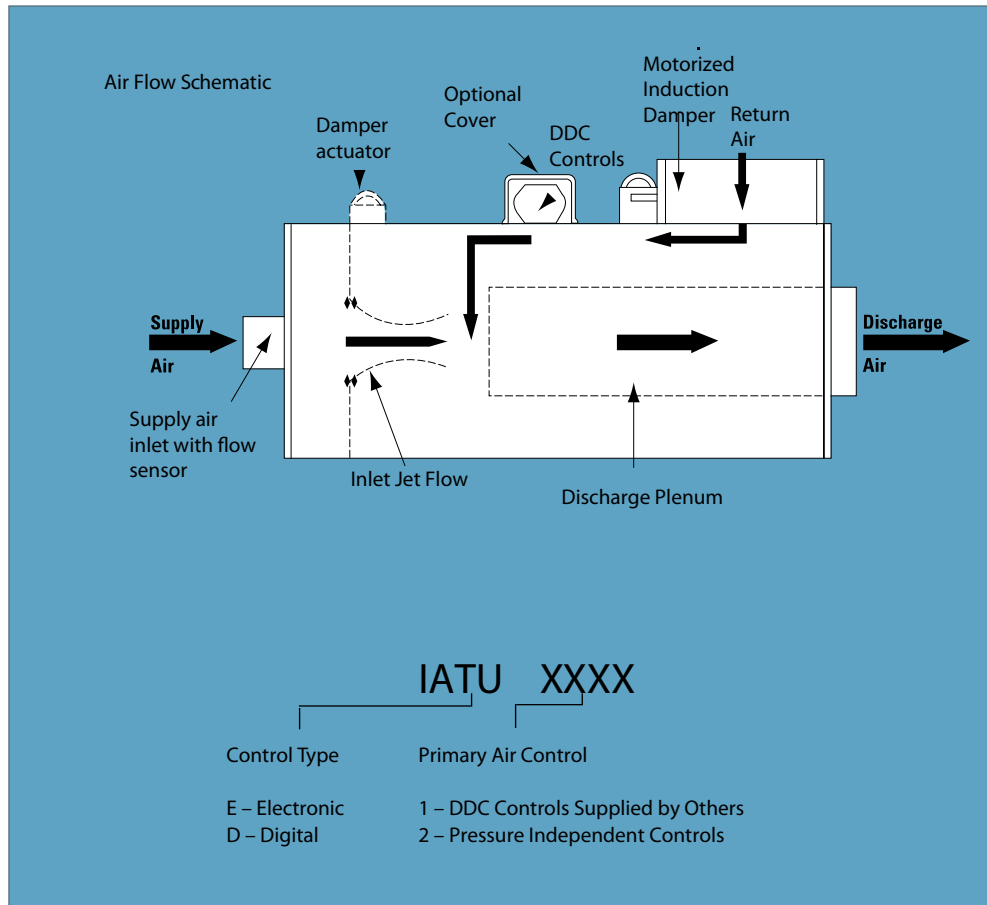




Product Overview



Features/Benefits

- Easily removable bottom access panel provides accessibility to induction nozzle and actuator for inspection and servicing.
- Multi-blade return air damper provides sensitive airflow control with minimum blade stick out, for tight installations.
- Low inlet static pressure requirements (0.5" Wg.) allow for reduced fan sizing.

Options Available:

- Controller cover

Construction

- Housing 22 ga. zinc-coated steel construction mechanically sealed and gasketed.
- Internal housing insulation 13mm fiberglass.
- Internal discharge plenum 25mm thick foil backed duct board.
- Heavy gauge zinc-coated steel induction nozzle and return air damper.
- Full 50mm zinc-coated steel discharge flange.
- Solid zinc-coated return air damper shaft and induction nozzle shaft.
- Multi-point sensor.

General Information

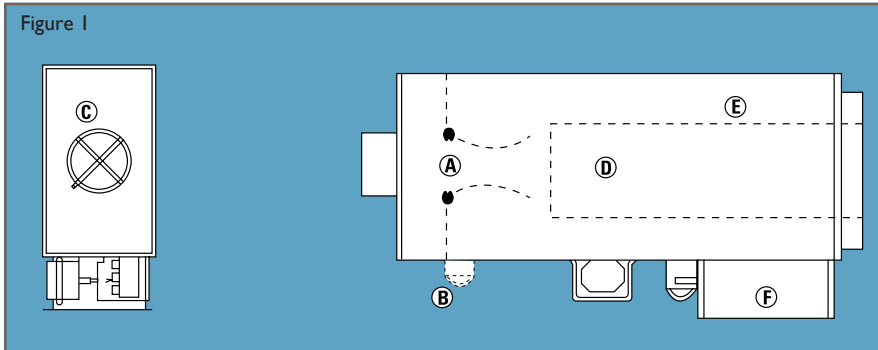
The IATU Series variable volume induction terminals are designed to provide the efficient control of conditioned supply air to match the room temperature loads and the energy efficient use of ceiling return air to insure satisfactory room condition. The conditioned supply air (Primary air) flow through a innovative variable aperture "JET FLOW nozzle" provide the induction of return air without the use of integral fan to induce negative pressure.

Induction of ceiling return air has to major benefits. First it helps to optimize energy use as it uses conditioned return air to mix with the primary air where required. Secondly the induction of the plenum air causes a constant air flow into the room resulting in greater comfort.

The IATU series of induction terminals is designed to operate efficiently over an inlet static pressure range 100pa to 1000pa. Terminal unit uses a multipoint flow sensor to accurately measue the primary airflow under varying flow conditions. the units are available with Electronic and digital state of the art controls as standard

Principle of Operation

Figure 1



Description

The basic unit (see Figure 1) consists of supply air inlet combined with damper/jet flow nozzle (A), actuator (B), velocity sensor (C) and related controls, internal discharge plenum (D), an acoustically lined casing (E), and a motorized induction damper (F).

Sequence of Operation

If the room temperature rises above the setpoint the thermostat reset the primary air damper to a higher airflow rate.

When the room temperature exceeds the reset range of the thermostat the primary airflow is held constant at its design Maximum and the induction damper is fully closed. This delivers 100% conditioned air to the space for maximum cooling (See Fig 2.)

As the space temperature starts to be satisfied the primary air flow decreases. The nozzle like design of the primary air damper creates a high velocity discharge jet directed into the internal discharge plenum. this jet action in turn creates a low pressure zone within the terminal casing. Simultaneously the induction damper modulates open to allow ceiling return air to be drawn into the terminal casing due to negative pressure created by the jet flow, mixed with the high velocity primary air in the internal discharge plenum and discharged from the terminal. The total supply air volume thus tend to remain constant (or at near primary maximum rating) until the primary airflow drops to about 50% of its maximum (See fig 3.)

As the space thermostat becomes satisfied the primary supply air damper will be throttled to it minimum flow position. At this point the induction damper is fully open position. The total air volume will also be at its minimum at this time. (see fig 4.)

If the space temperature drops below the thermostat the primary airflow will be maintained at its minimum setting resulting in the minimum rate of induced and mixed total air being delivered.

Figure 2

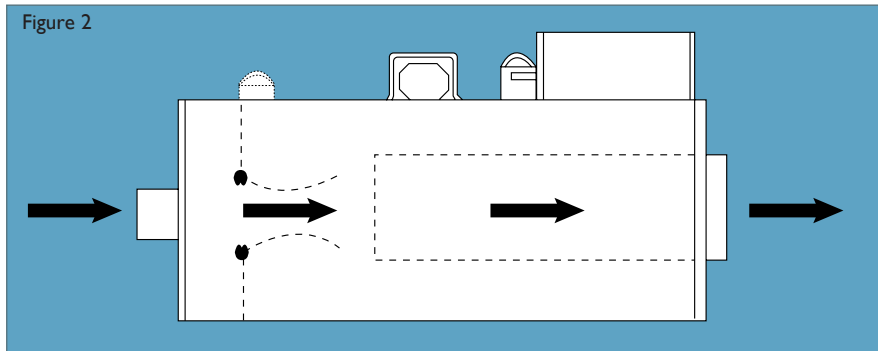


Figure 3

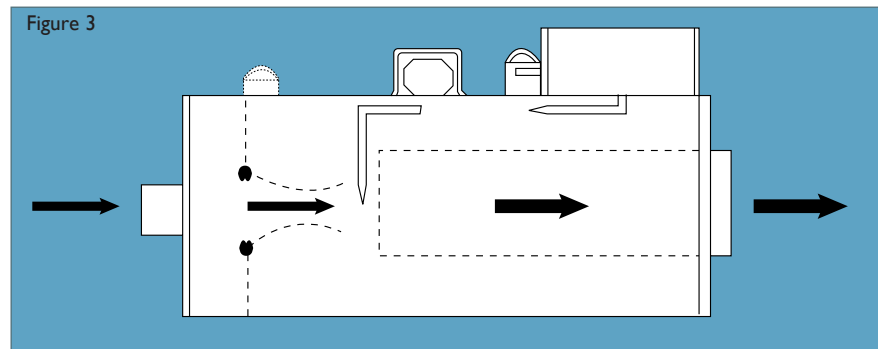
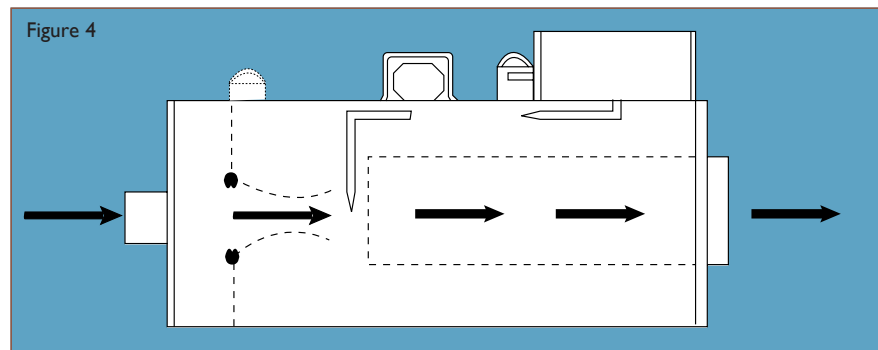


Figure 4



Selection Method

Unit Size	Airflow L/s	CFM	Minimum Operating Inlet Static Press.		Discharge NC			Radiated NC		
			Basic Unit		ΔPs Across Unit			ΔPs Across Unit		
			Pa	In. W.G.	0.5" W.G. (125 Pa)	1.5" W.G. (375 Pa)	3.0" W.G. (750 Pa)	0.5" W.G. (125 Pa)	1.5" W.G. (375 Pa)	3.0" W.G. (750 Pa)
150	94	200	125	0.50	—	—	—	—	20	22
	118	250	125	0.50	—	—	—	—	22	24
	142	300	125	0.50	—	—	—	—	23	25
	165	350	125	0.50	—	—	—	21	24	26
	189	400	125	0.50	—	—	—	22	25	27
	212	450	125	0.50	—	—	21	23	26	28
200	189	400	125	0.50	—	—	21	—	26	32
	236	500	125	0.50	—	—	23	—	27	33
	283	600	125	0.50	—	—	25	—	28	34
	330	700	125	0.50	—	—	25	—	28	34
	378	800	125	0.50	—	—	26	—	29	35
250	260	550	125	0.50	—	—	—	—	25	31
	319	675	125	0.50	—	—	22	—	26	32
	354	750	125	0.50	—	—	—	—	27	33
	448	950	125	0.50	—	—	22	—	29	35
	543	1150	125	0.50	—	—	24	21	30	36
	637	1350	125	0.50	—	—	26	22	31	37
300	425	900	125	0.50	—	—	—	—	20	26
	496	1050	125	0.50	—	—	—	—	22	28
	614	1300	125	0.50	—	—	20	—	25	30
	708	1500	125	0.50	—	—	22	20	26	32
	991	2100	125	0.50	—	—	27	24	31	36
350	472	1000	125	0.50	—	—	—	—	—	22
	708	1500	125	0.50	—	—	—	—	24	29
	944	2000	125	0.50	—	—	20	23	28	33
	1180	2500	125	0.50	—	—	24	26	31	37
	1416	3000	125	0.50	—	21	27	28	33	39

Performance Notes:

- Test data obtained in accordance with ARI Standard 880-98 and ASHRAE Standard 130-1996.
- Sound power levels expressed in decibels (dB) re 10^{-12} watts
- NC values are calculated based on typical attenuation values outlined in Appendix E, 2002 Addendum to ARI Standard 885-98, "A Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets".
- Radiated sound is based on a mineral fiber tile ceiling and the environmental effect. The radiated attenuation deductions are as follows:

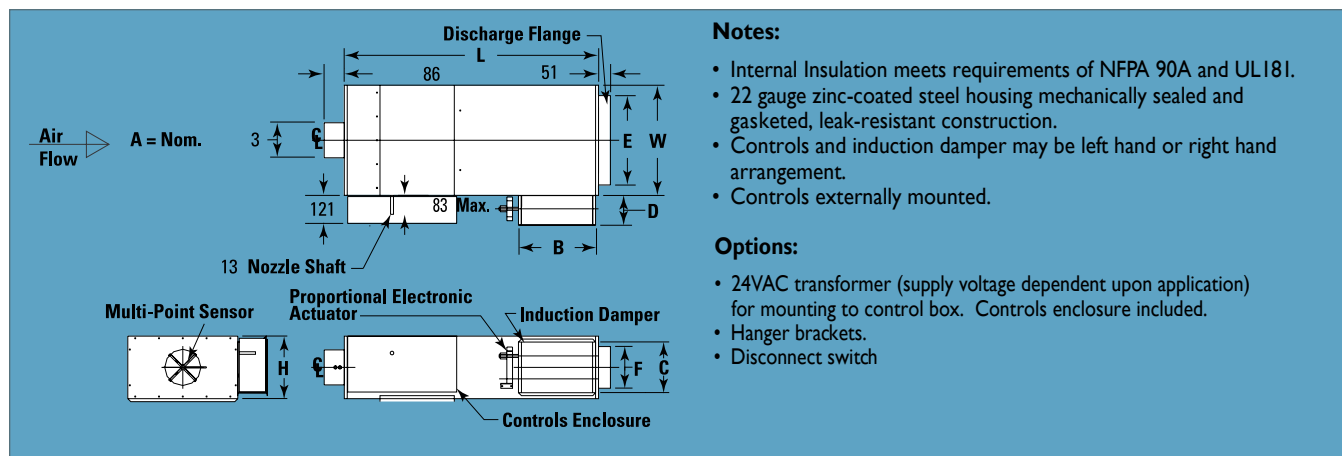
Radiated Attenuation	Octave Band					
	2	3	4	5	6	7
Total Deductions	18	19	20	26	31	36

- MinΔPs—Minimum static pressure required at the terminal inlet to achieve design induction flow.
- Discharge sound is based on the environmental effect, duct lining effect, end reflection, flex duct effect and sound power division. The total discharge attenuation deductions 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

- Pressure given in Pascals (Pa) and inches of water gauge (in. w.g.)
- Blanks (—) indicate NCs less than 20.

Dimensional Data



Unit Size	Max. CFM Range	Max. L/s Range	Dimensions (mm)								
			Inlet			Return Air			Discharge		
			A	B	C	D	E	F	L	W	H
15	450	212	149	356	216	140	381	178	1086	470	267
20	800	378	200	356	216	140	584	178	1086	660	267
25	1350	637	251	508	254	140	787	203	1200	876	318
30	2100	991	302	533	356	165	838	305	1505	1029	419
35	3000	1416	352	610	356	165	940	305	1505	1029	419

Air Volume Charts

Unit Size	IATU Capacity			
	L/s Min.	L/s Max.	cfm Min.	cfm Max.
15	31 – 212	75 – 212	66 – 450	158 – 450
20	62 – 378	151 – 378	132 – 800	320 – 800
25	104 – 637	258 – 637	221 – 1350	546 – 1350
30	146 – 991	373 – 991	310 – 2100	790 – 2100
35	207 – 1416	510 – 1416	439 – 3000	1080 – 3000

The air volume ranges listed are recommended for optimum performance. Selection of air flow limits below the listed values is not recommended. Stability and accuracy may not be acceptable at lower than recommended air flow limits.

Induction Performance

Size 15 & 20

	Inlet Static Pressure (in W.G.) Basic Assembly	Discharge Static Pressure (in W.G.)	% Primary Air									
			100	90	80	70	60	50	40	30	20	10
			Total Discharge Air (Expressed as a % of the Primary Max. Air Volume)									
	0.50	0.10	104	103	101	97	88	80	68	57	40	21
	0.75	0.10	104	104	104	100	91	83	70	59	42	20
	0.75	0.30	101	96	92	86	77	70	60	50	36	18
Size 15 & 20	1.00	0.10	105	106	107	103	95	87	75	60	43	21
	1.00	0.30	102	99	96	90	82	87	75	60	43	21
	1.50	0.10	105	108	112	110	101	92	77	63	44	23
	1.50	0.30	103	101	99	94	86	78	66	55	40	20
	2.50	0.10	107	112	118	115	103	92	75	58	39	20
	2.50	0.30	104	105	106	102	92	82	69	55	38	19

Size 25 & 30

	Inlet Static Pressure (in W.G.) Basic Assembly	Discharge Static Pressure (in W.G.)	% Primary Air									
			100	90	80	70	60	50	40	30	20	10
			Total Discharge Air (Expressed as a % of the Primary Max. Air Volume)									
	0.50	0.10	107	101	93	85	80	73	58	42	27	14
	0.75	0.10	107	104	102	95	86	77	66	54	39	19
	0.75	0.30	104	99	94	88	79	72	62	51	37	18
	1.00	0.10	107	106	105	99	91	82	69	56	40	20
Size 25 & 30	1.00	0.30	104	100	97	91	82	74	65	56	41	20
	1.50	0.10	107	108	111	107	98	89	75	63	45	23
	1.50	0.30	104	102	100	95	87	78	69	59	43	22
	2.50	0.10	107	113	118	116	105	94	79	64	45	23
	2.50	0.30	105	105	106	102	92	83	72	61	43	22

Size 35

	Inlet Static Pressure (in W.G.) Basic Assembly	Discharge Static Pressure (in W.G.)	% Primary Air									
			100	90	80	70	60	50	40	30	20	10
			Total Discharge Air (Expressed as a % of the Primary Max. Air Volume)									
	0.50	0.10	104	103	102	96	86	75	65	55	40	20
	0.75	0.10	104	103	102	98	92	85	71	58	40	20
	0.75	0.30	105	101	97	91	83	75	60	45	30	15
	1.00	0.10	105	105	105	102	94	86	73	58	41	20
Size 35	1.00	0.30	106	103	100	95	86	78	67	56	41	20
	1.50	0.10	104	106	108	105	97	89	75	60	41	20
	1.50	0.30	105	103	102	97	89	82	70	58	41	20
	2.50	0.10	107	108	110	109	105	101	84	66	45	23
	2.50	0.30	105	106	107	104	97	91	74	58	40	20

Performance Notes:

- Induction value (percentage) based on maximum rated flow and a minimum of zero – induction percentages may vary at other flow settings.

Discharge Sound Power Levels, Basic Assembly

SOUND POWER LEVELS L_w dB RE 10^{-12} WATTS

Unit Size	Airflow		Inlet Static 375 Pa							Inlet Static W.G. 625 Pa							Inlet Static 750 Pa						
			Octave Band							Octave Band							Octave Band						
	L/s	CFM	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7			
15	71	150	52	47	36	28	18	18	55	51	40	31	20	22	56	52	41	32	20	23			
	106	225	56	50	40	30	22	20	58	55	44	34	24	24	59	56	45	35	24	26			
	142	300	58	53	43	32	25	22	61	57	47	36	26	26	62	59	48	37	27	28			
	177	375	60	55	45	34	27	24	63	59	49	37	28	28	63	61	51	39	29	29			
	212	450	61	57	47	35	29	25	64	61	51	39	30	29	65	62	52	40	31	30			
20	189	400	60	57	46	34	23	25	64	61	51	37	26	30	66	63	53	38	27	31			
	236	500	62	59	48	36	26	28	66	63	53	40	29	32	67	64	54	41	30	33			
	283	600	63	60	50	38	29	29	67	64	54	41	32	34	68	66	56	43	33	35			
	330	700	64	61	51	40	31	31	68	65	56	43	34	35	69	67	57	44	35	37			
	378	800	65	62	52	41	34	32	69	66	57	44	36	36	70	68	58	46	37	38			
25	260	550	62	54	44	32	24	26	66	58	48	34	26	29	67	60	49	35	27	30			
	354	750	64	56	48	37	30	31	68	61	51	39	32	34	69	63	53	40	33	35			
	448	950	65	59	50	41	35	34	69	63	54	43	37	37	71	65	56	44	38	38			
	543	1150	67	60	53	44	39	37	71	65	57	46	41	40	72	66	58	47	42	41			
	637	1350	68	62	55	46	42	39	72	66	59	49	44	42	73	68	60	50	45	43			
30	425	900	59	50	43	35	31	37	64	54	46	38	35	40	65	56	47	39	36	42			
	566	1200	63	53	47	39	34	39	67	58	49	42	38	43	68	59	50	43	39	44			
	708	1500	65	56	50	42	37	41	69	60	52	45	41	44	71	62	53	46	42	46			
	849	1800	67	58	52	44	39	42	71	63	55	47	43	46	73	64	56	48	44	47			
	991	2100	69	60	54	46	41	43	73	65	57	49	45	47	75	66	58	50	46	48			
35	472	1000	56	49	44	34	27	40	59	53	47	37	30	43	60	54	48	38	32	45			
	708	1500	61	54	48	39	33	42	64	58	51	43	36	45	65	59	52	44	37	47			
	944	2000	65	57	51	43	37	43	68	61	54	46	41	47	69	62	55	47	42	48			
	1180	2500	68	60	53	46	41	44	71	64	56	49	44	48	72	65	57	50	45	49			
	1416	3000	70	62	55.4	48	43	45	73	66	58	51	46	48	75	67	59	53	48	50			

Performance Notes:

1. Data obtained in accordance with ARI standard 880-98 and ASHRAE standard 130-1996.
2. Airflow given in Liters/second and cubic feet per minute.
3. Blankspaces = sound power level less than <20.
4. Pressure given in Pascals (Pa) and inches water gauge(In WG)

Radiated Sound Power Levels, Basic Assembly

SOUND POWER LEVELS Lw dB RE 10 ⁻¹² WATTS																							
Unit Size	Airflow L/s CFM		Inlet Static 375 PA Octave Band							Inlet Static 625 PA Octave Band							Inlet Static 750 PA Octave Band						
			2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7			
15	71	150	52	47	39	35	27	—	55	50	41	37	30	20	56	51	42	38	31	22			
	106	225	56	51	42	39	33	26	59	54	45	42	36	30	60	55	46	43	38	31			
	142	300	59	54	45	43	38	32	62	57	48	45	41	36	63	58	49	46	42	37			
	177	375	61	56	47	45	42	37	64	59	50	48	45	41	66	60	51	48	46	42			
	212	450	63	58	49	47	45	41	66	61	52	50	48	45	67	62	53	50	49	46			
20	189	400	59	49	44	41	40	36	63	54	48	44	43	42	65	55	49	45	45	45			
	236	500	61	51	45	43	42	39	65	55	49	46	45	46	66	57	50	47	47	48			
	283	600	62	52	46	44	44	42	66	57	50	48	47	49	68	59	51	49	48	51			
	330	700	64	54	47	46	45	45	68	58	51	49	49	51	69	60	52	50	50	53			
	378	800	65	55	48	47	46	47	69	59	52	50	50	53	70	61	53	51	51	55			
25	260	550	63	53	53	51	42	36	67	58	55	55	47	42	68	59	56	56	48	44			
	354	750	64	56	55	54	46	39	69	60	57	58	50	46	70	62	57	59	52	48			
	448	950	66	58	56	56	48	42	70	62	58	60	53	48	72	64	58	61	54	51			
	543	1150	67	59	57	58	50	44	71	64	59	62	55	51	73	65	59	63	56	53			
	637	1350	68	61	58	59	52	46	72	65	59	63	56	52	73	67	60	64	58	55			
30	425	900	55	49	49	50	41	40	58	52	52	52	44	43	59	53	53	52	45	44			
	566	1200	59	53	51	52	45	44	62	56	54	53	48	47	64	57	55	54	49	48			
	708	1500	62	56	53	53	49	47	66	59	56	55	52	50	67	60	57	55	53	51			
	849	1800	65	58	55	55	51	50	68	61	57	56	54	53	69	62	58	57	55	54			
	991	2100	67	60	56	56	54	52	71	63	58	57	57	55	72	64	59	58	58	56			
35	472	1000	55	46	46	49	47	39	57	49	48	50	48	42	58	50	48	51	49	43			
	708	1500	59	51	50	51	50	44	62	54	52	53	51	47	63	55	52	53	52	48			
	944	2000	63	55	52	53	52	48	65	57	54	55	54	51	66	58	55	55	54	52			
	1180	2500	66	57	55	55	54	51	68	60	56	56	56	54	69	61	57	57	56	55			
	1416	3000	68	60	56	56	56	53	70	62	58	58	57	56	71	63	59	58	58	57			

Performance Notes:

1. Data obtained in accordance with ARI standard 880-98 and ASHRAE standard 130-1996.
2. Airflow given in Liters/second and cubic feet per minute.
3. Blankspaces = sound power level less than <20.
4. Pressure given in Pascals (Pa) and inches water gauge(In WG)