

Double-Width Centrifugal Fan *Performance Supplement*

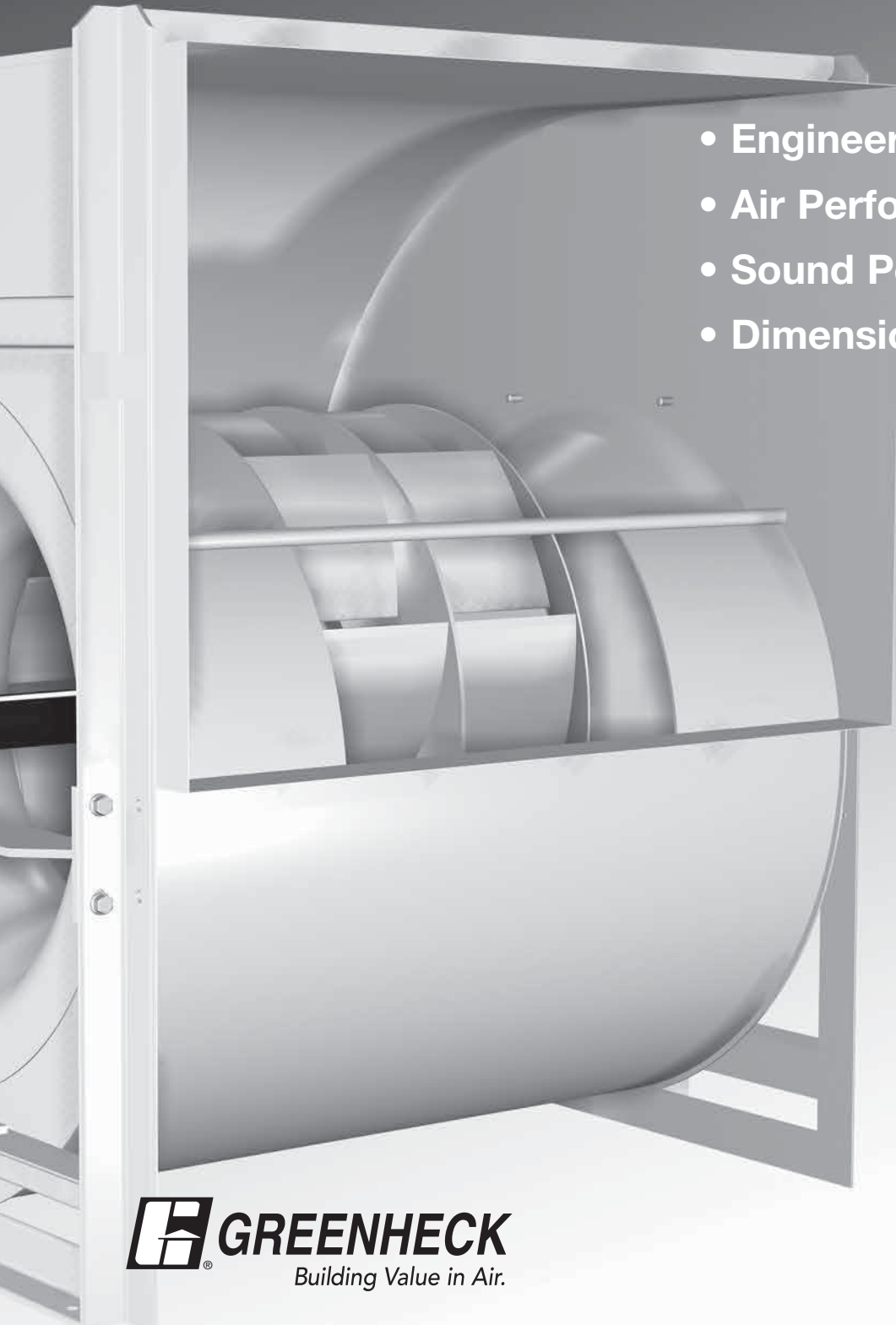
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- Engineering Information
 - Air Performance
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 - Dimensional Data

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Air and Sound Performance Data

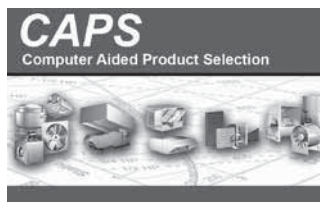
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Dimensional Data

Sizes 12-73 Double-Width, arr. 3	80
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Greenheck Fan Corporation certifies that the backward inclined and airfoil centrifugal fans shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.



Computer Aided Product Selection Program – CAPS

All Greenheck products are supported by the industry's best product literature, electronic media, and Computer

Aided Product Selection program, CAPS. Online, you can also find electronic copies of our product literature as well as storage, installation and maintenance information in our Installation and Operation Manuals.

And, of course, you can always count on the personal service and expertise of our national and international representative organization. To locate your nearest Greenheck representative call 715-359-6171 or visit our Web site at www.greenheck.com

To-Scale Drawings and Fan Specifications

To-scale CAD drawings along with detailed centrifugal specifications can be found online at greenheck.com or within our Computer Aided Product Selection program (CAPS).

Our Warranty

Greenheck warrants this equipment to be free from defects in material and workmanship for a period of one year from the shipment date. Any units or parts which prove defective during the warranty period will be replaced at our option when returned to our factory, transportation prepaid. Motors are warranted by the motor manufacturer for a period of one year. Should motors furnished by Greenheck prove defective during this period, they should be returned to the nearest authorized motor service station. Greenheck will not be responsible for any removal or installation costs.

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.

Motor Selection

Greenheck centrifugal fans can be supplied with any motor that is commercially available, and appropriate for the fan size and performance required. The tables show motor frame sizes corresponding to those motors readily available.

- Notes: 1. Fractional horsepower motor frame sizes shown may change due to variations in voltage, special features and manufacturer.
 2. Motors shown are ball bearing, continuous duty. Two speed motors are two winding, 1/3 reduction in RPM.
 3. Single-phase motors are capacitor start.

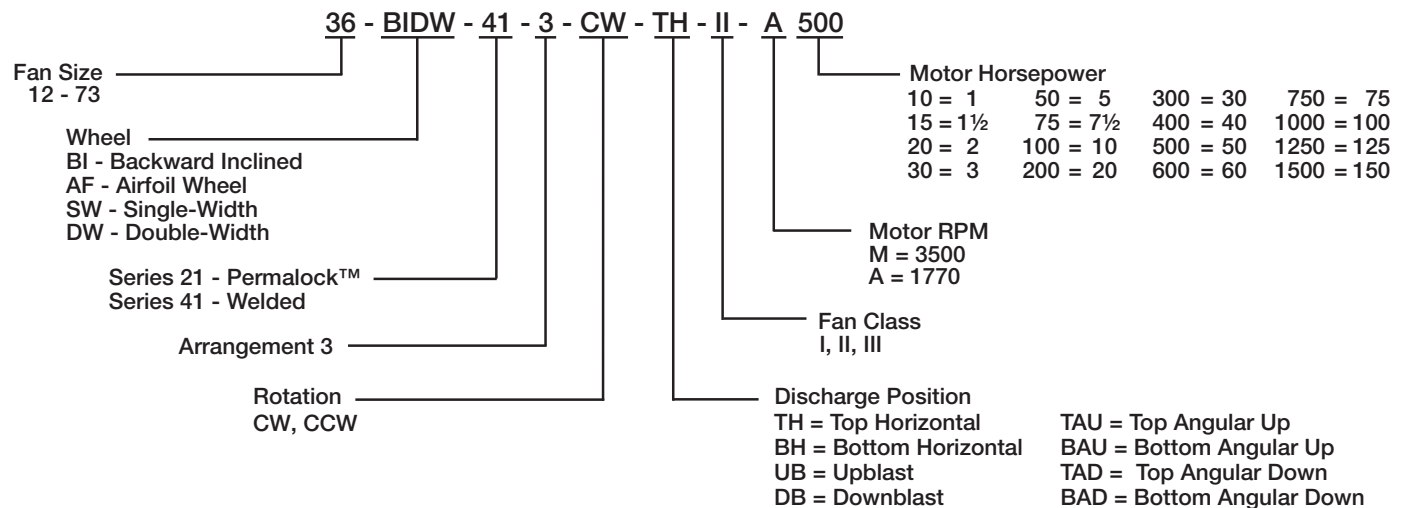
1800 RPM Motors											
HP	Single Speed								2 Speed 2 Winding		
	Open			TE		Explosion-Resistant		High Efficiency		Open	
	115V 1PH	230V 1PH	3PH	115V 230V 1PH	3PH	115V 230V 1PH	3PH	Open 230V 460V 3PH	TE 230V 460V 3PH	115V 1PH	3PH
1/4	48	48	48	48	48	48	48			48	
1/3	48	48	56	56	56	56	56			56	
1/2	56	56	56	56	56	56	56			56	
3/4	56	56	56	56	56	56	56			56	
1	56	56	143T	56	143T		56	143T	143T		56
1 1/2	145T	145T	145T	145T	145T		145T	145T	145T		56
2	182T	182T	145T	182T	145T		145T	145T	145T		182T
3			182T		182T		182T	182T	182T		184T
5			184T		184T		184T	184T	184T		215T
7 1/2			213T		213T		213T	213T	213T		254T
10			215T		215T		215T	215T	215T		256T
15			254T		254T		254T	254T	254T		256T
20			256T		256T		256T	256T	256T		284T
25			284T		284T		284T	284T	284T		286T
30			286T		286T		286T	286T	286T		324T
40			324T		324T		324T	324T	324T		326T
50			326T		326T		326T	326T	326T		365T
60			364T		364T		364T	364T	364T		
75			365T		365T		365T	365T	365T		
100			405T		405T		405T	405T	405T		
125			405T		444T		444T	405T	444T		
150			444T		445T		445T	444T	445T		

3600 RPM Motors											
3600 RPM motors are recommended for fan speed over 2700 RPM											
HP	Single Speed								2 Speed 2 Winding		
	Open			TE		Explosion-Resistant		High Efficiency		Open	
	115V 1PH	230V 1PH	3PH	115V 230V 1PH	3PH	115V 230V 1PH	3PH	Open 230V 460V 3PH	TE 230V 460V 3PH	115V 1PH	3PH
1/3	48	48									
1/2	48	48	56	56	56						
3/4	56	56	56	56	56						
1	56	56	56	56	56						
1 1/2	143T	143T	143T	143T	143T			143T	143T	143T	
2	145T	145T	145T	145T	145T			145T	145T	145T	
3	182T	182T	145T	182T	182T			182T	145T	182T	
5		184T	182T	182T	184T			184T	182T	184T	
7 1/2		213T	184T	184T	213T			213T	184T	213T	
10		215T	213T	213T	215T			215T	213T	215T	
15			215T		254T			254T	215T	254T	
20			254T		256T			256T	254T	256T	
25			256T		284TS			284TS	256T	284TS	
30			284TS		286TS			286TS	284TS	286TS	
40			286TS		324TS			324TS	286TS	324TS	
50			324TS		326TS			326TS	324TS	326TS	

Motor Number Code

The model number code is a complete guide to ordering or specifying Greenheck Class II centrifugal fan models.

Belt Drive (BIDW) Model Number Code



Engineering Data

Motor Starting Torque

When selecting a motor for an industrial process fan, the motor must be capable of driving the fan at operating speed and also capable of accelerating the fan wheel, shaft and drive to the operating speed.

The fan performance tables and curves in this catalog show the brake horsepower required to operate the fan once it is brought to operating speed. For applications requiring a large air volume at a low static pressure, the BHP required at the fan's operating RPM may not be sufficient to initially start the fan. If the time required to bring the fan to speed is excessive, the motor winding insulation can be damaged due to excessive temperature rise and the life of the motor seriously affected.

For a belt drive industrial process fan, the required motor starting torque capability can be expressed by the following formula:

$$WR_M^2 = WR_F^2 \times \left(\frac{FRPM}{MRPM} \right)^2 \times (1.1)$$

WR_M^2 = The moment of inertia that the motor must be capable of turning at the motor shaft, lb-ft²

WR_F^2 = The moment of inertia of the fan wheel, lb-ft²

FRPM = Fan RPM

MRPM = Motor RPM

V-Belt Drives

Constant Speed Drives

Advantages of constant speed drives include low vibration levels, ease of assembly and low cost. Fan speed changes can be accomplished in most cases simply by changing the motor pulley.

Constant speed drives are recommended over variable speed drives for applications that require motors 15 HP and larger, and all applications requiring 3600 RPM motors.

Variable Speed Drives

Variable speed drives allow the fan speed to be changed by adjusting the pitch diameter of the motor pulley. The power to the fan must be off and locked out, and the belts must be removed before manually adjusting the variable pitch pulley.

High Temperature Operating Limits

Temperature	Material	Arrangement	Options Included
-20 to 180°F	Steel Aluminum Stainless Steel	3	None

Moments of Inertia (lb-ft²)

Moments of inertia are shown for steel wheels. Aluminum wheels are one-third of the value shown.

Fan Size	Steel Backward Inclined Centrifugal Wheels			Steel Airfoil Centrifugal Wheels		
	Class I	Class II	Class III	Class I	Class II	Class III
12	2.2	2.7	3.8	-	-	-
13	3.1	4.3	5.6	-	-	-
15	5.4	6.1	7.8	-	-	-
16	7.9	8.9	10.5	-	-	-
18	12.5	13.8	18.9	15.6	16.9	23.9
20	17.3	19.1	35.2	21.6	23.4	38.1
22	32.0	32.0	52.3	38.8	38.8	57.2
24	44.2	49.4	71.3	54.1	54.1	78.2
27	66.2	79.1	96.9	80.2	85.5	129
30	105	136	144	118	139	178
33	152	198	210	172	234	261
36	260	303	399	267	362	428
40	435	505	628	444	582	665
44	642	863	927	638	842	955
49	971	1310	1380	1130	1300	1450
54	1760	2120	2130	1700	2100	2430
60	2850	3480	3700	3210	3180	3530
66	4650	5070	5350	4590	4550	5290
73	6950	7570	7950	6860	6860	7860

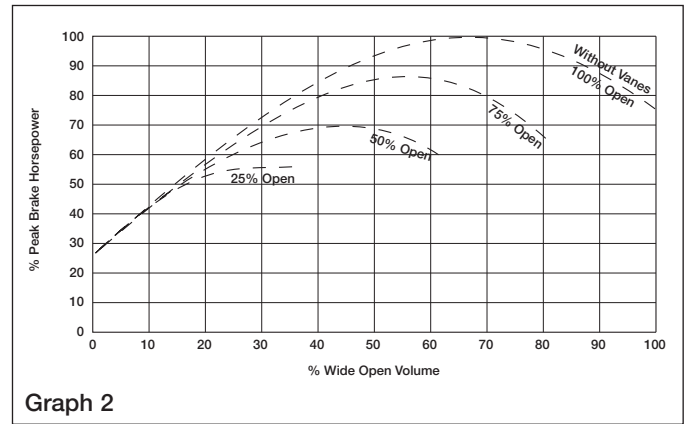
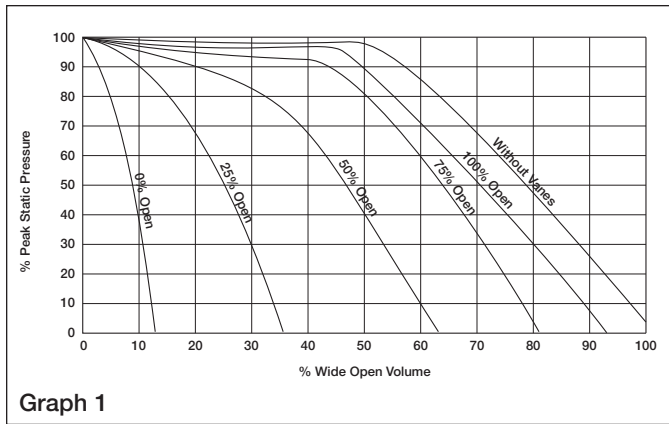
Fan RPM Limitations

The maximum allowable wheel RPM shown on the fan performance pages are for fans of standard steel operating at 70°F. Since the strength of the fan wheel, shaft and bearings decreases with an increase in temperature, maximum allowable speeds must be reduced by the correction factors shown below.

Maximum RPM Correction Factors For High Temperatures			
Temperature (°F)	Wheel Material		
	Aluminum	Steel	316 SS
70	1.00	1.00	1.00
200	1.00	.97	.92

Inlet Vane Performance

As inlet vanes are closed, they impart a spin to the airflow in the direction of wheel rotation and reduce airflow, static pressure and brake horsepower as shown in the graphs below. The graphs show how CFM, static pressure and brake horsepower are affected as inlet vanes are modulated from 100% open to 0% open in a typical variable air volume system. Graph 3 provides RPM and BHP correction factors for fans equipped with inlet vanes.



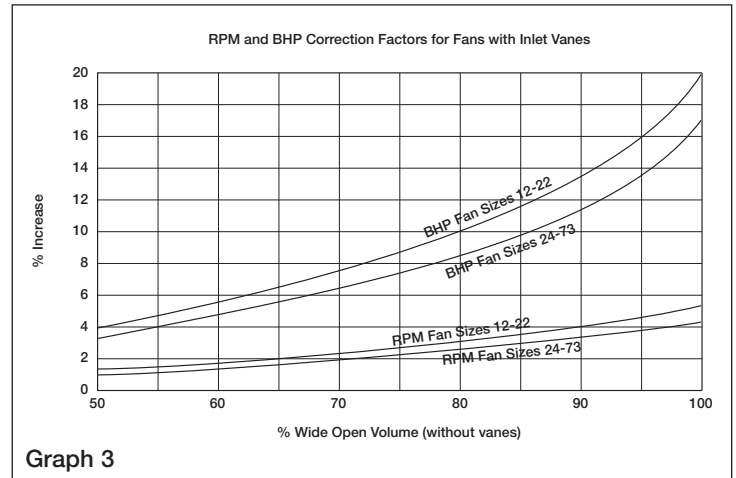
RPM & BHP Corrections

To compensate for pressure drop through inlet vanes, a percentage increase in fan RPM and BHP at full-load design conditions must be applied.

Enter graph 3 with “% wide open volume” (see page 9 for calculation of % WOV) and the appropriate fan size.

Move horizontally left to the “% increase” scale. Record the % increase.

Increase the selected fan RPM by the % increase shown. Also increase the BHP by the % increase shown.



Minimum Recommended Actuator Torque For Inlet Vanes (inch-lbs.) for Double-Width Fans

Use the table below to determine minimum torque required for an inlet vane actuator.

Class	Fan Size																		
	12	13	15	16	18	20	22	24	27	30	33	36	40	44	49	54	60	66	73
I	52	60	66	76	94	114	136	220	260	280	320	360	540	640	740	860	1000	1200	1400
II	76	86	98	116	146	176	220	320	360	400	460	520	840	980	1160	1360	1600	1920	2200
III	108	126	144	172	220	260	320	440	520	560	660	760	1240	1480	1760	2000	2400	3000	3400

Engineering Data

Effect of Air Density – Temperature and Elevation

Ratings in the fan performance tables and curves of this catalog are based on standard air (clean, dry air with a density of 0.075 pounds per cubic foot, barometric pressure at sea level of 406.75 inches wg, temperature of 70°F). Selecting a fan to operate at conditions other than standard air requires an adjustment to both static pressure and brake horsepower.

One cubic foot of air has a constant volume regardless of temperature or elevation. However, air density changes with non-standard temperature or elevation. Therefore, when selecting a fan to operate at a non-standard air density using standard air density tables and curves, corrections must be made to parameters affected by air density. These parameters are static pressure and brake horsepower.

For example, a size 30 BIDW centrifugal fan is to deliver 35,000 CFM at 4.5 inches wg static pressure. Elevation is 4000 feet, temperature is 100°F.

The 4.5 inches wg static pressure refers to the static pressure at the operating air density, in this case at 4000 feet, 100°F. Intuitively, we realize that at higher than standard elevations and temperatures, air density will be lower than standard. Therefore, we must determine what static pressure at standard air density will equate to 4.5 inches wg static pressure at our operating density. Since standard air density is greater than operating air density in this case, we would expect the corrected static pressure to be greater than the operating static pressure.

The accompanying table gives air density correction factors for non-standard temperatures and elevations.

The example below shows the relationship of fan performance at sea level and at 4000 ft. elevation and 100°F.

Example:

The following example shows how to properly select the fan described above:

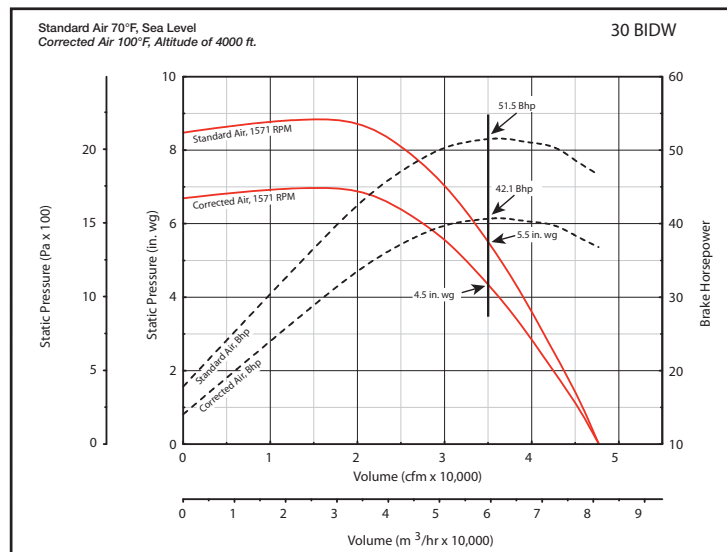
1. Since the air volume delivered by the fan is not affected by density, airflow remains 35,000 CFM.
2. Determine correction factor from chart for an elevation of 4000 feet and air temperature of 100°F. The correction factor is 0.817.
3. Divide the specified operating static pressure by the correction factor to determine the standard air density equivalent static pressure.
Corrected static pressure = 4.5 inches wg ÷ 0.817 = 5.5 inches wg static pressure.
4. Refer to the fan performance table for a 30 BIDW. At 35,000 CFM and 5.5 inches wg static pressure:
Fan RPM = 1571, BHP = 51.5
5. 1571 Fan RPM is required to produce the desired performance.
6. Since the horsepower selected refers to standard air density, this must be corrected to reflect actual BHP at the lighter operating air.
Operating BHP = Standard BHP x 0.817, or 51.5 x 0.817 = 42.1 BHP.

If a fan is selected to operate at high temperatures, the motor must be of sufficient horsepower to handle the increased load at any lower operating temperature where the air is more dense. Assume the air entering the 30 BIDW fan at start-up is 0°F. For 0°F and 4000 feet elevation, the air density correction factor is 0.995

BHP at 0°F = 51.5 x 0.995 = 51.2, therefore, a 60 HP motor is required.

Dry Air Density Correction Factor (I-P)													
Multiply Standard Air Density, 0.075 lb _m /ft ³ by the Factor to obtain Density at Condition p _b													
Altitude, (Z)	ft.	-1000	Sea Level	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000
	Barometric Pressure (P _b)	in. Hg	31.02	29.92	28.85	27.82	26.82	25.84	24.89	23.98	23.09	22.22	21.39
	in. wg	421.71	406.75	392.21	378.20	364.61	351.29	338.37	326.00	313.90	302.07	290.79	279.78
Temperature °F, (t)	-40	1.309	1.262	1.217	1.174	1.131	1.090	1.050	1.012	0.974	0.937	0.902	0.868
	0	1.195	1.152	1.111	1.071	1.033	0.995	0.959	0.924	0.889	0.856	0.824	0.793
	40	1.099	1.060	1.022	0.986	0.950	0.915	0.882	0.850	0.818	0.787	0.758	0.729
	70	1.037	1.000	0.964	0.930	0.896	0.864	0.832	0.801	0.772	0.743	0.715	0.688
	100	0.981	0.946	0.913	0.880	0.848	0.817	0.787	0.759	0.730	0.703	0.677	0.651
	150	0.901	0.869	0.838	0.808	0.779	0.750	0.723	0.696	0.670	0.645	0.621	0.598
	200	0.832	0.803	0.774	0.747	0.720	0.693	0.668	0.644	0.620	0.596	0.574	0.552
	250	0.774	0.746	0.720	0.694	0.669	0.645	0.621	0.598	0.576	0.554	0.534	0.513
	300	0.723	0.697	0.672	0.648	0.625	0.602	0.580	0.559	0.538	0.518	0.498	0.480
	350	0.678	0.654	0.631	0.608	0.586	0.565	0.544	0.524	0.505	0.486	0.468	0.450
	400	0.639	0.616	0.594	0.573	0.552	0.532	0.513	0.494	0.475	0.458	0.440	0.424
	450	0.604	0.582	0.561	0.541	0.522	0.503	0.484	0.467	0.449	0.432	0.416	0.401
	500	0.572	0.552	0.532	0.513	0.495	0.477	0.459	0.442	0.426	0.410	0.395	0.380
550	0.544	0.525	0.506	0.488	0.470	0.453	0.436	0.420	0.405	0.390	0.375	0.361	
600	0.518	0.500	0.482	0.465	0.448	0.432	0.416	0.401	0.386	0.371	0.357	0.344	
700	0.474	0.457	0.440	0.425	0.409	0.394	0.380	0.366	0.352	0.339	0.327	0.314	
800	0.436	0.420	0.405	0.391	0.377	0.363	0.350	0.337	0.324	0.312	0.301	0.289	
900	0.404	0.390	0.376	0.362	0.349	0.336	0.324	0.312	0.301	0.289	0.278	0.268	
1000	0.376	0.363	0.350	0.337	0.325	0.313	0.302	0.291	0.280	0.269	0.259	0.250	

Adapted from AMCA Standard 99-09, section 0200, Charts and Tables, with written permission from Air Movement and Control Association International, Inc.



Effect of Installation on Performance

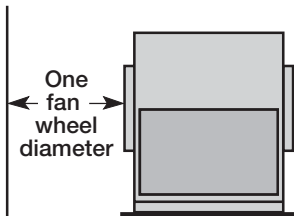
Ratings presented in the performance tables and curves of this catalog were derived from tests made in accordance with AMCA Standard 210 — “Laboratory Methods of Testing Fans for Ratings.” The AMCA test procedure utilizes an open inlet and a straight outlet duct to assure maximum static regain.

Any installation with inlet or discharge configurations that deviate from this standard may result in reduced fan performance. Restricted or unstable flow at the fan inlet can cause pre-rotation of incoming air or uneven loading of the fan wheel yielding large system losses and increased sound levels. Free discharge or turbulent flow in the discharge ductwork will also result in system effect losses.

Static pressure losses due to inlet and discharge conditions can be expressed in terms of system effect factors. The static pressure for selection of the fans equals the system static pressure plus the system effect factor.

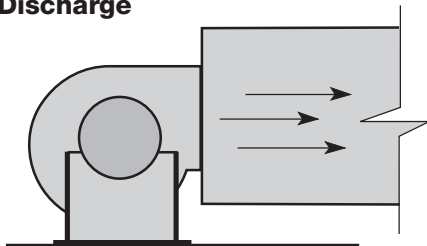
Some common inlet and discharge conditions which affect fan performance are:

Non-Ducted Inlet Clearance



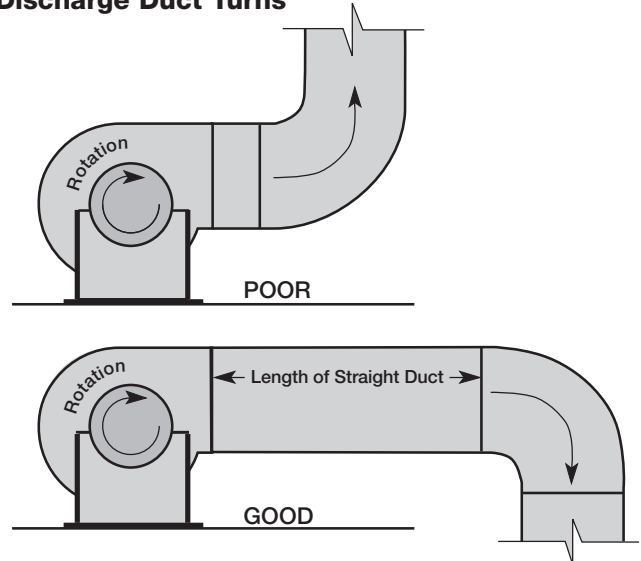
Installation of a fan with an open inlet too close to a wall or bulkhead will cause reduced fan performance. It is desirable to have one fan wheel diameter between the fan inlet and the wall. System effect **Curve #2** depicts the pressure loss for one-half wheel diameter clearance.

Free Discharge



Free or abrupt discharge into a plenum results in a reduction in fan performance. The effect of static regain in discharge is not realized. System effect **Curve #1** depicts the pressure loss for free or abrupt discharge.

Discharge Duct Turns

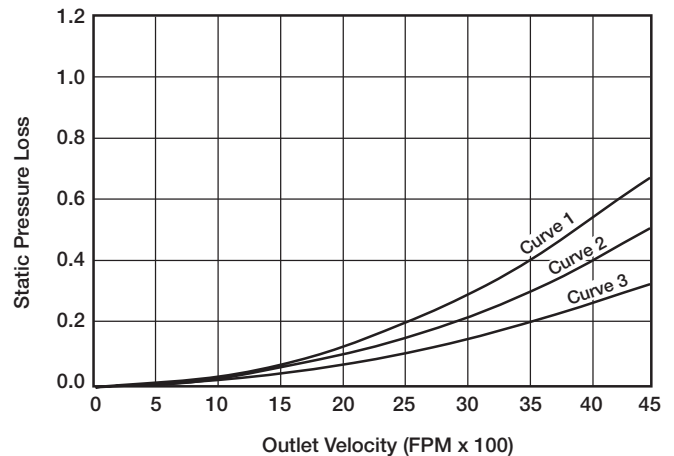


Duct turns located near the fan discharge should always be in the direction of the fan rotation.

Fan performance is reduced when duct turns are made immediately off the fan discharge. To achieve cataloged fan performance there should be at least three equivalent duct diameters of straight ductwork between the fan discharge and any duct turns. **Curve #3** shows the system effect factor for two diameters of straight ductwork and **Curve #1** for one diameter.

System Effect Factor Curves

Additional information on system effect factors can be found in AMCA Publication 201 — “Fans and Systems” and ASHRAE Handbooks.



Sound Performance Testing

AMCA Licensed Ratings

Sound tests of Model BIDW and AFDW were conducted in Greenheck Fan Corporation's AMCA Accredited sound laboratory in accordance with AMCA Standard 300. Inlet and outlet sound ratings comply with AMCA Publication 311, qualifying these models to bear the AMCA Seal for Sound and Air Performance. The sound power levels published here can be compared directly with those of other similarly rated fans, or used as a baseline to determine sound levels in occupied spaces.

The sound data in this brochure is the result of extensive testing, which included both inlet and outlet sound tests on double-width centrifugal fans. Typically, fan manufacturers publish only inlet sound for double-width fans. The assumption they make is that outlet sound is identical to inlet sound. Sound data based on this assumption is simply not accurate enough for today's sound sensitive installations. This assumption also ignores duct end corrections for outlet sound.

Test Methods

AMCA Standard 300 clearly defines methods used to test fans in a reverberant sound test room. The reverberant room is specifically designed to allow sound waves to be dispersed evenly throughout the room. The walls have a hard surface that reflects sound and are positioned to prevent resonances which could result in quiet areas within the room.

Sound power cannot be directly measured. The test method is based on a Reference Sound Source (RSS) substitution for determining fan sound power. The RSS is a laboratory calibrated device which has a known sound power output level. The test fan is installed as shown below. The RSS is energized and the sound pressure levels in the reverberant room are recorded. The fan is then operated without the RSS and the fan sound pressure levels are recorded for various points of operation. Since the sound power levels of the RSS are known, the substitution method is used to determine the sound power levels of the fan. This method is illustrated in the following example.

Calculating Fan Sound Power

Octave Band	1	2	3	4	5	6	7	8
Center Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Calibrated RSS Sound Power (Lwr)	82	81	81	81	81	81	79	78
Measured RSS Sound Pressure (Lpq)	70	74	75	76	75	74	69	61
Difference (Lwr-Lpq)	12	7	6	5	6	7	10	17
Measured Fan Sound Pressure (Lpm)	68	72	69	69	68	62	57	46
Substitution (Lwr-Lpq, from above)	+12	+7	+6	+5	+6	+7	+10	+17
Fan Sound Power (Lw)	80	79	75	74	74	69	67	63

Note: Sound level shown in dB

Test Setups

The illustrations show where the sound levels were measured with respect to the fan. Inlet sound was tested as in Figure 2 of AMCA Standard 300 and outlet sound was tested as in Figure 3. Inlet and outlet sound were determined in the same inlet and outlet configurations as the air tests. (Installation Type B - Free Inlet, Ducted Outlet).

Since double-width fans are more often ducted at the inlet, they are tested only for sound radiated from the fan inlet.

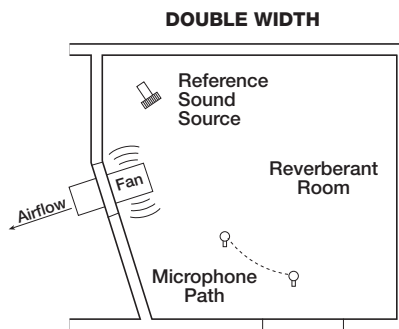


Figure 2:
AMCA Standard 300 - Fan Inlet Sound Testing
Installation Type B: Free Inlet, Ducted Outlet

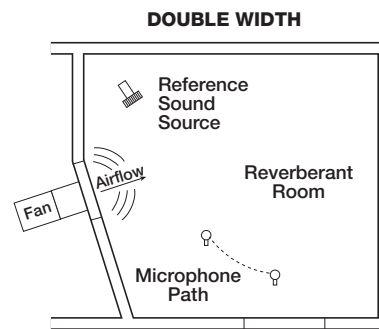


Figure 3:
AMCA Standard 300 - Fan Outlet Sound Testing
Installation Type B: Free Inlet, Ducted Outlet
(Ratings include the effects of duct end correction)

Interpreting Sound Data

Sound power levels in this catalog are presented as dB (re 10^{-12} watts) in each of the eight full octave bands with center frequencies from 63 Hz to 8000 Hz. They are also presented as a single A-weighted sound power level, L_{WA} . Charts are provided covering the full range of fan speeds and percent wide open volume (% WOV) for each fan size. Outlet sound power data is based on a ducted outlet and therefore includes duct end reflection corrections.

Sound Performance Testing

Outlet Sound – Duct End Corrections

This correction accounts for sound that is reflected back into the duct where there is an abrupt termination of the duct.

AMCA Standard 300 requires that outlet sound power for fans with ducted outlets include Duct End Corrections. These corrections account for any sound power that may be present in the duct but is not measured in the reverberant room, because it is reflected back into the duct at the discharge.

Duct end corrections are included in all outlet sound power ratings.

Duct End Corrections (dB)			
Size	Double-Width Fans		
	63 Hz	125 Hz	250 Hz
18	9	5	2
20	9	4	1
22	8	4	1
24	7	3	
27	6	3	
30	6	2	
33	5	2	
36	5	2	
40	4	1	
44	4	1	
49	3		
54	3		
60	2		
66	2		
73	2		

Tolerance and Application

The certification process in AMCA Standard 311 call for a precertification test to verify original test results. Check tests are also required every three (3) years for each model licensed. Test data must agree with the published sound power within the following tolerance levels:

Octave Band	1	2	3	4	5	6	7	8
Center Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
Tolerance	+6	+3	+3	+3	+3	+3	+3	+3

These tolerance levels are a good indication of the variance that could occur from one fan or test setup to another. Once installed however, there are many other factors that can affect the sound power generated by a fan.

The lower frequencies (below 125 Hz) are greatly affected by vibration. Fan wheel balance, motor balance, drive alignment, etc., all affect the vibration level of the fan and can increase sound power in the 1st and 2nd octaves. When ducts are not properly isolated from the fan, these vibrations can be transmitted into the ducts, which can generate additional low frequency sound.

Sound power generated by a fan can also be influenced by system effects. System effects are pressure losses caused by inlet or outlet restrictions, or other conditions causing non-uniform airflow at the inlet or discharge of a fan (see AMCA Publication 201). Examples include inlet or outlet elbows too close to a fan, restricted inlets and fan accessories. While system effects can prevent fans from reaching their designed air performance, they can also result in increased sound power levels. Typically, system effects cause pressure fluctuations which influence the lower frequencies. Poor inlet conditions can also greatly increase sound levels at the blade pass frequency (BPF). The blade pass frequency refers to how often a blade or wheel fin passes a stationary location of the housing and can be calculated using the following equation:

Per AMCA: Blade Pass Frequency

$$\text{BPF (Hz)} = \left(\frac{\text{Fan RPM} \times \text{Number of Blades}}{60} \right)^2$$

NOTE: All BISW and AFSW wheels have nine blades.

Sound is becoming increasingly critical for most fan installations. Greenheck employs extensive research and testing to provide sound data that is as thorough and accurate as possible. However, sound pressure levels in occupied spaces are affected by the acoustical qualities of the space, distance from source to receiver, etc. Therefore, published sound power data can be used only as a baseline for determining the resulting sound pressure levels an occupant hears. While Greenheck provides products which meet published sound power levels, no manufacturer can be responsible for poor installations or system designs beyond their control. For further information on installation practices, see AMCA Publication 201, "Fans and Systems".

Sound Power

Sound power data is charted for the full range of RPM and percent wide open volume (% WOV) for each unit size.

The % WOV is a convenient way to indicate the operating point (pressure and CFM) for a given fan RPM. To calculate the % WOV for a given fan size, use the equation given on the performance page.

Use the following procedure to calculate sound data for a specific Fan RPM and % WOV:

$$\% \text{ WOV} = \frac{\text{CFM} \times 100}{\text{RPM} \times K}$$

1. Determine the eight sound power levels for the specified % WOV using the higher Fan RPM shown.
2. Determine the eight sound power levels for the specified % WOV using the lower Fan RPM shown.
3. Interpolate between the higher and lower sound power levels using the specified RPM.

Fan Selection Procedure

STEP 1

Enter the performance table with the desired CFM and Ps. Obtain the fan RPM, BHP and Class.

EXAMPLE

For this example, we will use 13,400 CFM at 2.0 Ps. This gives us a fan RPM of 1847, requiring 10.9 BHP, with Class I construction.

NOTE: If your specific fan selection requires inlet vanes or if the fan operating point is not at standard air (70°F), refer to the inlet vane and air density correction factor graphs and tables found on pages 5 and 6.

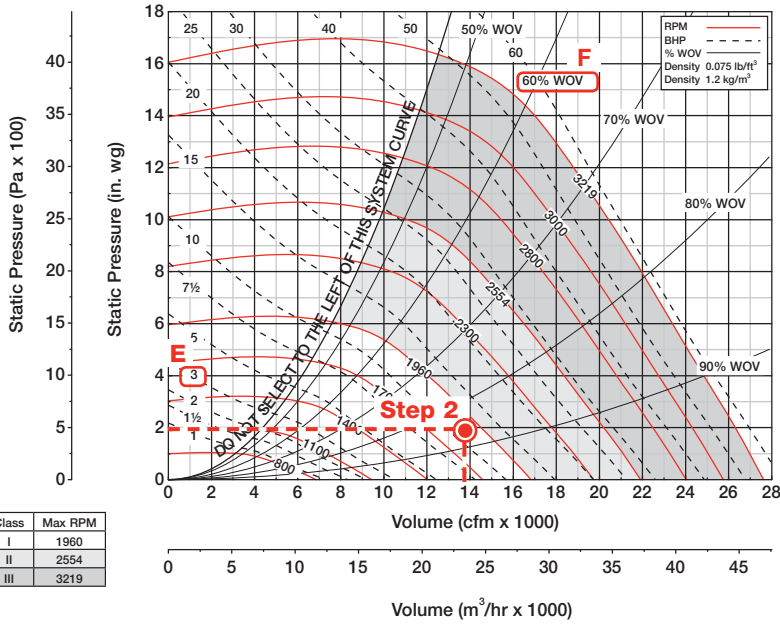
STEP 2

Enter the Fan Curve with the desired CFM and Ps. Obtain the fan operating point, % WOV, Motor HP and verify fan class by curve shading.

EXAMPLE

For this example, the fan operating point is at 85% WOV using a 15 HP motor.

20 BIDW



Class	Max RPM
I	1960
II	2554
III	3219

STEP 3

Enter the Fan Sound Table with the Fan RPM from the performance table and the % WOV from the fan curve. Obtain the eight octave ratings for inlet (L_{wi}) and Outlet (L_{wo}) Sound Power.

EXAMPLE

For this example, the eight octave ratings are circled in the table below.

NOTE: The exact % WOV for your desired performance can be found using the equation at the top of the Sound Power Tables if it is not published. The eight octave ratings can then be found using the interpolation instructions found in the Sound Performance section on pages 8 and 9.

$$\% \text{WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 8.58)$$

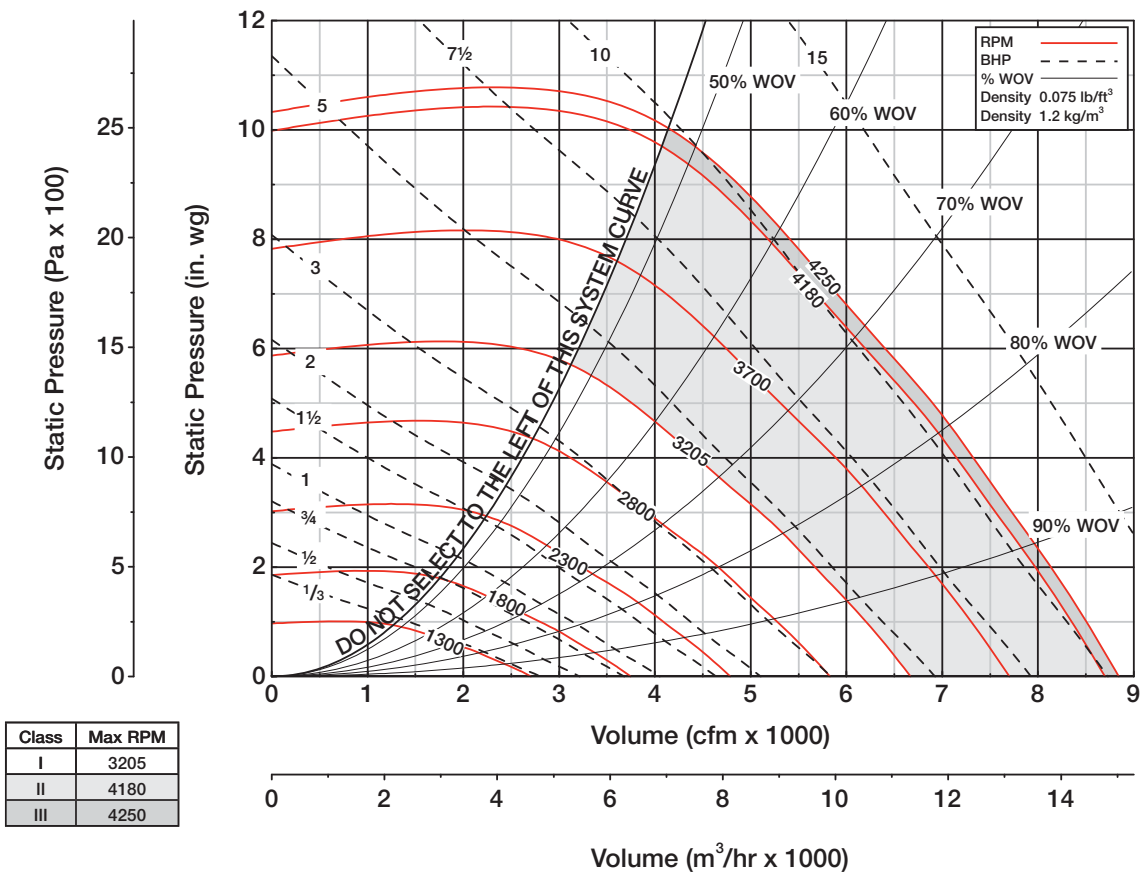
Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wiA}
550	100	78	75	74	78	68	62	56	52	76
	80	76	73	71	75	67	60	54	50	74
	60	75	70	70	76	67	60	54	50	74
	50	75	69	69	76	67	60	54	50	75
	40	74	69	69	77	67	60	54	50	75
800	100	79	91	83	82	76	72	64	60	83
	80	80	89	81	78	72	67	59	54	80
	60	77	83	76	71	67	67	59	54	77
	50	76	80	74	76	71	67	60	55	77
	40	77	78	74	76	71	67	60	55	77
1100	100	85	92	91	89	85	81	74	70	90
	80	84	88	88	87	81	77	69	65	87
	60	83	84	83	83	79	76	70	65	85
	50	80	83	82	83	79	76	70	66	84
	40	80	83	82	83	78	75	70	66	84
1600	100	91	94	98	95	92	89	83	78	97
	80	88	91	96	93	90	86	80	75	95
	60	87	88	93	89	86	83	78	75	92
	50	87	88	91	88	85	82	78	75	91
	40	89	88	90	87	85	82	78	76	90
2200	100	98	100	103	105	98	96	91	88	105
	80	95	97	100	103	96	92	87	84	102
	60	92	93	98	99	93	91	87	84	100
	50	93	93	98	97	93	90	87	84	99
	40	95	95	98	98	92	90	88	86	99
3219	100	105	109	110	114	110	106	102	98	115
	80	103	106	107	111	107	102	98	94	112
	60	100	102	105	107	104	101	97	94	109
	50	101	103	105	105	103	100	97	94	108
	40	103	105	106	106	103	99	98	96	108

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
550	100	90	78	75	68	67	59	52	47	73
	80	90	77	71	64	64	54	47	45	70
	60	83	74	68	63	62	54	48	45	67
	50	82	73	67	63	63	54	48	45	67
	40	82	73	67	63	63	54	48	45	67
800	100	93	96	83	77	77	71	63	57	84
	80	90	92	81	73	72	64	57	52	80
	60	87	84	76	72	69	63	57	53	75
	50	87	82	74	72	68	62	57	54	74
	40	89	83	73	71	68	62	57	54	74
1100	100	99	93	90	86	86	80	74	67	90
	80	96	92	88	83	81	74	67	61	86
	60	91	87	83	78	77	71	66	61	82
	50	91	86	82	77	76	71	66	62	81
	40	92	86	81	76	75	70	66	62	80
1600	100	105	98	98	94	93	89	85	77	98
	80	102	95	96	91	92	87	81	73	96
	60	100	91	93	87	87	83	77	72	92
	50	100	92	92	86	86	81	76	72	91
	40	100	93	92	85	84	81	76	72	90
2200	100	109	105	106	109	102	97	93	88	109
	80	107	101	101	105	98	93	89	83	105
	60	103	97	96	99	96	91	86	81	100
	50	104	98	95	97	94	89	85	81	99
	40	107	100	95	95	92	89	85	81	98
3219	100	117	115	113	118	114	108	104	99	118
	80	115	112	109	113	110	104	100	94	114
	60	111	108	105	107	106	102	97	92	110
	50	112	109	104	105	104	100	96	92	108
	40	116	112	106	103	102	99	95	92	107

Step 3

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wiA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



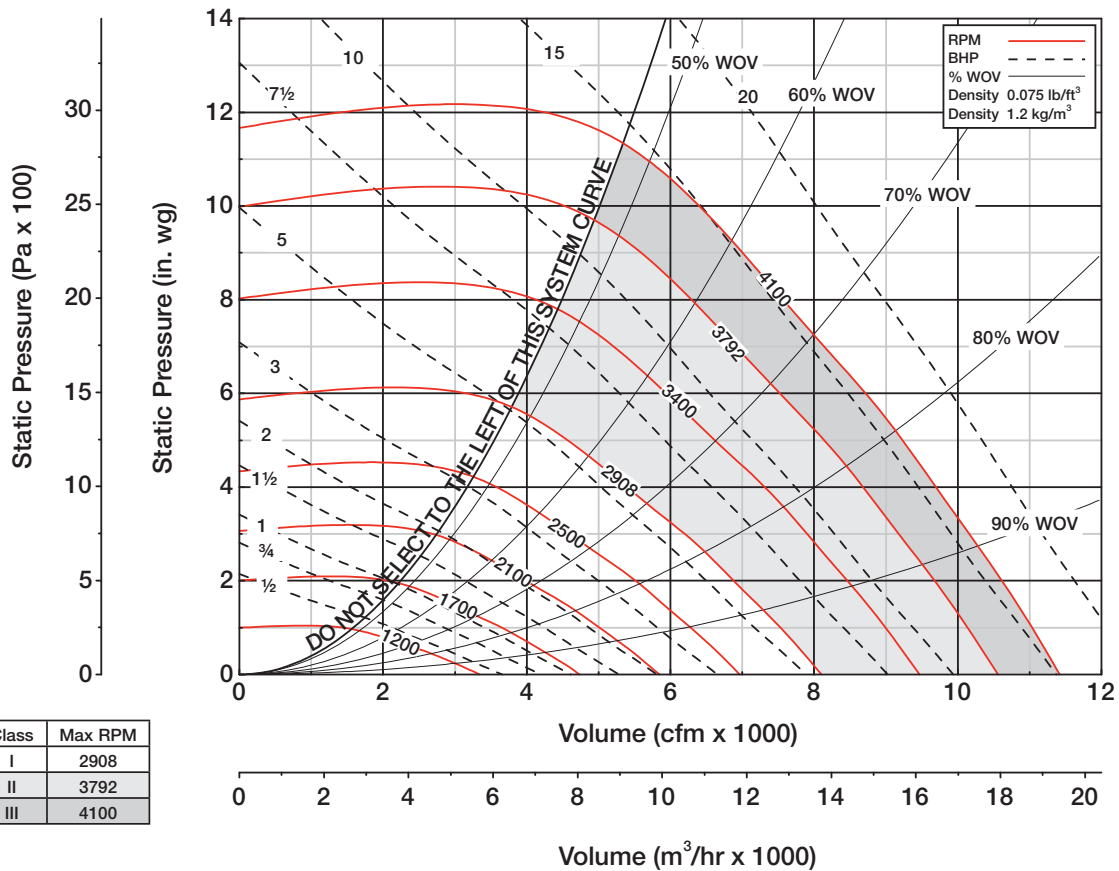
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 2.08)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
900	100	68	74	73	72	70	65	58	52	74
	80	68	74	73	72	69	65	58	52	74
	60	67	69	72	72	69	65	58	51	74
	50	67	69	72	72	69	65	58	52	74
	40	67	69	72	72	69	64	58	51	73
1300	100	74	78	81	77	73	71	66	58	79
	80	71	77	80	74	71	68	62	55	77
	60	71	74	75	73	70	67	62	55	75
	50	71	74	75	72	71	67	63	55	75
	40	72	74	74	72	71	68	63	55	75
1900	100	83	84	87	86	82	78	77	69	88
	80	81	81	85	84	79	75	71	64	85
	60	80	80	81	83	78	73	70	65	84
	50	83	83	81	83	78	73	71	66	84
	40	83	83	81	83	79	73	71	66	84
2600	100	92	95	91	97	93	88	88	87	98
	80	90	96	89	96	90	85	84	79	96
	60	89	93	87	92	88	83	82	77	93
	50	89	90	87	91	87	83	81	77	92
	40	90	90	87	90	87	83	81	78	92
3800	100	98	98	97	103	100	95	94	95	105
	80	96	95	94	100	97	92	90	87	101
	60	91	94	93	97	94	90	88	85	99
	50	92	96	94	97	93	90	88	86	99
	40	91	97	95	98	94	90	88	86	100
4250	100	100	101	99	104	103	98	96	97	107
	80	97	98	97	102	100	95	92	90	104
	60	93	97	96	99	97	93	90	88	101
	50	93	99	97	99	96	92	90	88	101
	40	93	99	98	100	97	93	91	88	102

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{wA}
900	100	87	82	75	65	65	62	53	45	72
	80	85	78	74	64	65	60	51	44	71
	60	83	75	73	63	64	60	51	44	70
	50	85	76	73	63	64	60	51	44	70
	40	87	77	73	63	64	60	52	44	70
1300	100	93	83	82	74	72	71	64	54	79
	80	91	81	80	71	70	67	59	50	77
	60	90	80	80	69	69	65	59	51	76
	50	92	81	80	69	69	65	59	52	76
	40	94	82	80	69	69	65	59	52	76
1900	100	99	90	92	84	80	79	75	67	88
	80	96	88	90	82	78	76	70	61	86
	60	96	88	90	80	76	73	68	62	84
	50	98	87	87	79	76	73	68	63	83
	40	100	90	88	79	76	73	68	63	84
2600	100	105	95	94	95	88	87	84	80	96
	80	102	92	91	91	86	83	79	71	92
	60	102	90	89	90	83	80	75	70	90
	50	104	92	90	90	83	80	75	71	91
	40	104	94	91	90	83	80	75	72	91
3800	100	111	104	101	104	99	97	94	92	105
	80	110	101	98	101	97	94	89	85	102
	60	109	99	96	97	93	91	86	82	99
	50	109	102	97	97	93	90	86	83	99
	40	110	104	100	97	92	89	86	83	99
4250	100	112	107	103	105	102	99	96	95	108
	80	112	105	100	102	100	97	92	88	105
	60	110	103	98	99	96	93	89	85	101
	50	110	105	100	99	96	92	89	85	101
	40	111	107	103	100	95	92	89	86	102

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	2908
II	3792
III	4100

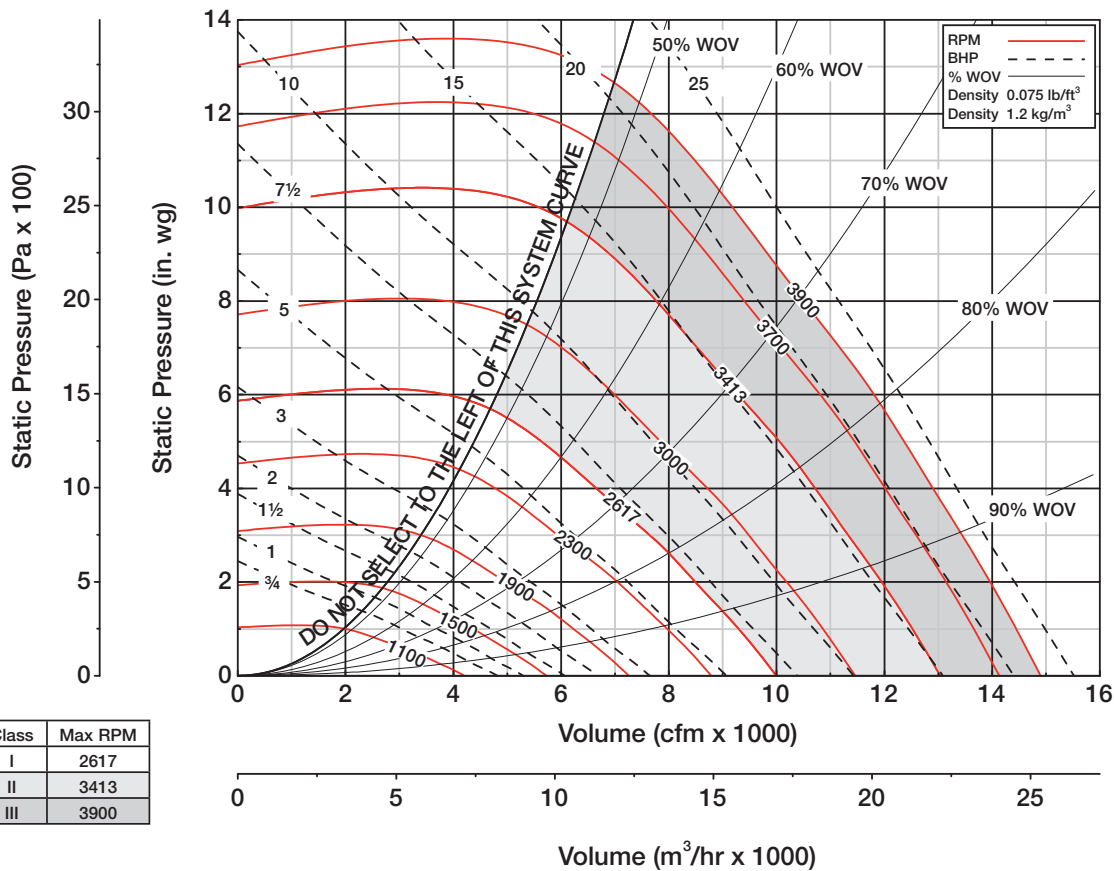
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 2.79)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L _{wi}								
		1	2	3	4	5	6	7	8	L _{wiA}
850	100	71	77	75	74	71	67	59	53	76
	80	71	76	75	74	71	66	59	53	75
	60	69	71	74	74	70	66	59	53	75
	50	70	71	74	74	70	66	59	53	75
	40	69	71	74	74	70	66	59	53	75
1200	100	76	80	81	77	74	72	67	59	80
	80	74	79	81	75	72	69	63	55	78
	60	73	76	76	74	71	68	63	55	76
	50	73	75	75	73	72	68	63	56	76
	40	74	75	74	73	72	69	63	56	76
1700	100	85	84	88	86	81	79	77	68	88
	80	83	81	86	85	79	75	71	63	85
	60	82	80	82	84	78	73	70	64	84
	50	84	83	81	84	78	73	71	66	84
	40	85	82	82	84	78	73	71	66	84
2400	100	94	96	93	98	94	89	89	88	99
	80	92	97	90	97	91	86	85	79	97
	60	91	94	88	93	89	84	82	78	94
	50	91	92	88	93	88	84	82	78	93
	40	91	91	88	92	88	84	82	79	93
3500	100	101	99	98	105	100	96	95	96	106
	80	98	96	95	102	97	92	91	88	103
	60	93	96	94	99	95	90	89	86	100
	50	94	98	95	98	94	90	89	86	100
	40	93	99	96	100	94	91	89	87	101
4100	100	103	103	102	107	105	100	98	99	109
	80	100	101	99	104	101	96	94	92	106
	60	96	99	98	101	99	94	92	90	103
	50	96	101	99	101	98	94	93	90	103
	40	96	102	101	103	99	95	93	90	104

RPM	%WOV	Outlet Sound Power, L _{wo}								
		1	2	3	4	5	6	7	8	L _{woA}
850	100	89	83	76	66	67	63	53	46	74
	80	87	79	76	65	67	61	52	45	72
	60	85	76	75	64	66	61	52	45	71
	50	87	76	75	64	66	61	52	45	71
	40	89	78	75	64	66	61	53	45	72
1200	100	95	83	83	74	73	72	64	54	80
	80	92	81	81	71	71	68	59	51	78
	60	91	80	81	69	71	66	59	52	76
	50	93	80	81	69	70	66	59	52	77
	40	96	81	81	69	71	66	60	53	77
1700	100	100	88	94	83	80	79	75	66	89
	80	97	87	91	81	78	76	69	60	86
	60	97	87	91	78	77	73	67	61	85
	50	99	86	88	78	77	73	68	62	83
	40	101	89	89	78	77	73	68	63	84
2400	100	105	95	95	96	89	88	85	81	97
	80	103	92	92	92	86	84	80	71	93
	60	103	91	90	91	84	81	76	71	91
	50	105	92	91	91	83	80	76	72	91
	40	105	95	92	91	83	81	76	72	91
3500	100	112	104	102	105	100	98	94	93	106
	80	111	101	99	102	97	95	90	86	103
	60	110	99	97	98	94	92	87	83	100
	50	110	102	98	98	93	91	87	83	100
	40	111	104	101	98	93	90	87	84	100
4100	100	115	109	106	108	104	101	98	97	110
	80	114	106	102	105	102	99	94	90	107
	60	113	105	101	101	98	95	91	87	103
	50	113	107	102	101	98	94	91	87	104
	40	114	109	105	102	97	94	91	88	104

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi}, L_{wiA} and outlet L_{wo}, L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	2617
II	3413
III	3900

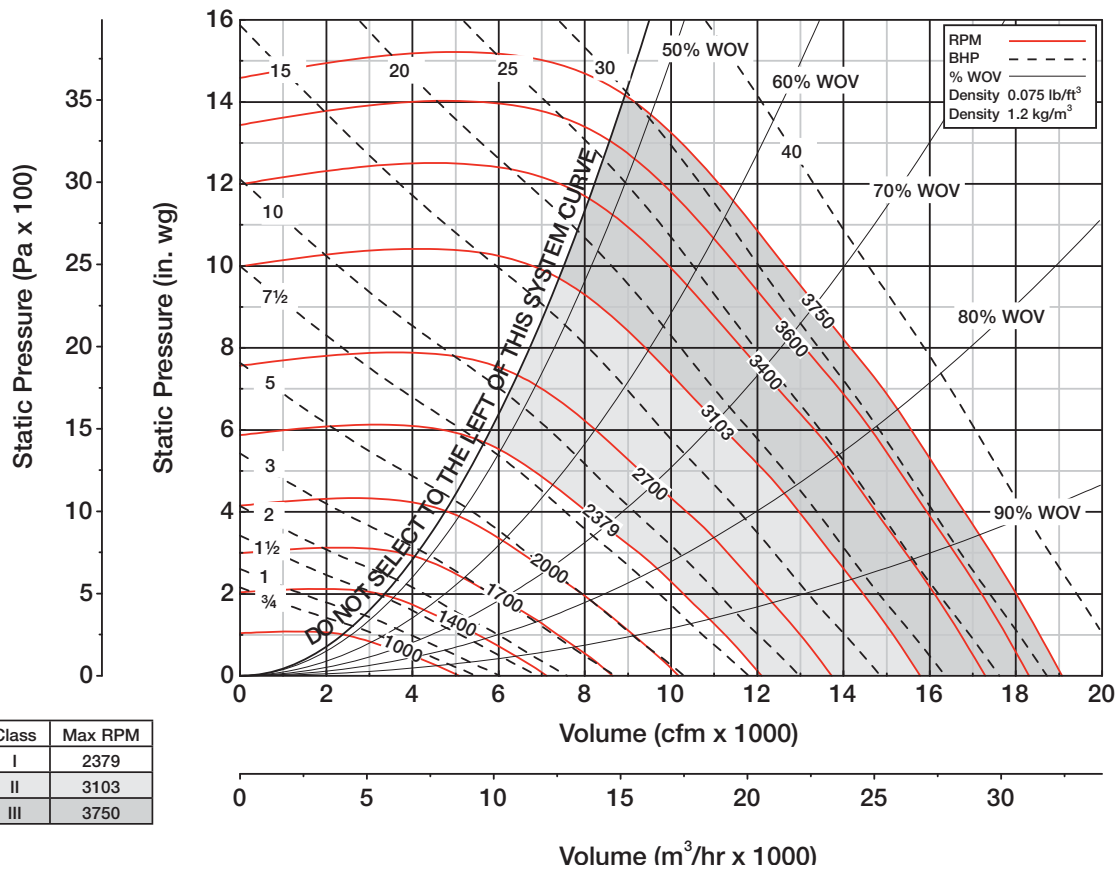
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 3.82)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L _{wi}								L _{wiA}
		1	2	3	4	5	6	7	8	
800	100	74	79	77	76	73	68	61	55	78
	80	74	79	77	76	72	68	60	54	77
	60	72	73	76	76	72	67	60	54	77
	50	73	73	77	76	72	67	60	54	77
	40	72	74	76	75	72	67	60	54	77
1100	100	78	82	82	78	75	73	67	59	81
	80	76	81	81	76	73	70	63	55	79
	60	75	78	77	75	72	69	63	56	77
	50	75	78	76	75	72	69	64	56	77
	40	76	78	75	75	73	69	64	56	77
1600	100	87	87	90	88	83	80	78	70	89
	80	85	84	88	86	80	77	72	64	87
	60	84	82	84	86	79	75	71	66	86
	50	86	85	84	85	79	75	72	67	85
	40	87	84	84	85	80	75	72	67	86
2200	100	96	97	95	99	94	91	90	89	100
	80	95	97	93	98	92	87	86	80	98
	60	93	94	90	94	89	85	83	78	95
	50	92	93	90	93	89	85	83	79	94
	40	93	92	90	93	89	85	83	79	94
3100	100	101	99	99	105	100	96	96	97	106
	80	98	96	97	103	97	93	91	88	103
	60	94	96	95	99	94	91	89	86	100
	50	95	98	96	99	94	91	89	87	100
	40	95	99	97	100	94	91	90	87	101
3900	100	106	106	104	109	106	102	101	101	111
	80	103	103	102	106	103	98	96	94	108
	60	99	102	101	103	101	96	94	92	105
	50	99	104	102	103	100	96	94	92	105
	40	99	104	103	105	101	97	95	92	106

RPM	%WOV	Outlet Sound Power, L _{wo}								L _{woA}
		1	2	3	4	5	6	7	8	
800	100	91	85	77	67	70	65	54	47	75
	80	90	81	77	65	69	63	53	46	74
	60	87	77	76	64	68	62	53	46	73
	50	89	78	76	65	69	62	54	47	73
	40	91	80	76	65	69	62	54	47	74
1100	100	94	84	83	75	74	72	64	54	80
	80	92	83	81	73	72	68	59	51	78
	60	91	82	80	71	71	66	59	52	77
	50	93	82	81	70	71	66	60	53	77
	40	95	83	81	70	71	66	60	53	78
1600	100	101	91	95	84	82	81	76	67	90
	80	98	89	93	82	80	77	70	61	87
	60	98	89	92	80	78	74	69	63	86
	50	100	88	89	79	78	74	69	64	85
	40	102	91	90	80	78	74	69	64	86
2200	100	105	97	96	96	90	89	86	82	97
	80	103	94	93	93	87	85	80	72	94
	60	103	92	91	91	85	82	77	72	92
	50	104	94	92	92	84	81	77	73	92
	40	105	96	93	91	84	81	77	73	92
3100	100	112	104	103	106	100	98	95	94	106
	80	111	101	100	102	97	95	90	86	103
	60	109	99	98	98	94	91	87	83	100
	50	110	101	99	98	93	91	87	83	100
	40	111	104	101	98	93	90	87	84	100
3900	100	117	111	108	110	106	103	100	99	112
	80	116	108	105	107	103	101	96	92	109
	60	114	106	103	103	100	97	93	89	105
	50	115	108	104	103	99	96	93	89	105
	40	116	111	106	103	99	96	93	89	106

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi}, L_{wiA} and outlet L_{wo}, L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



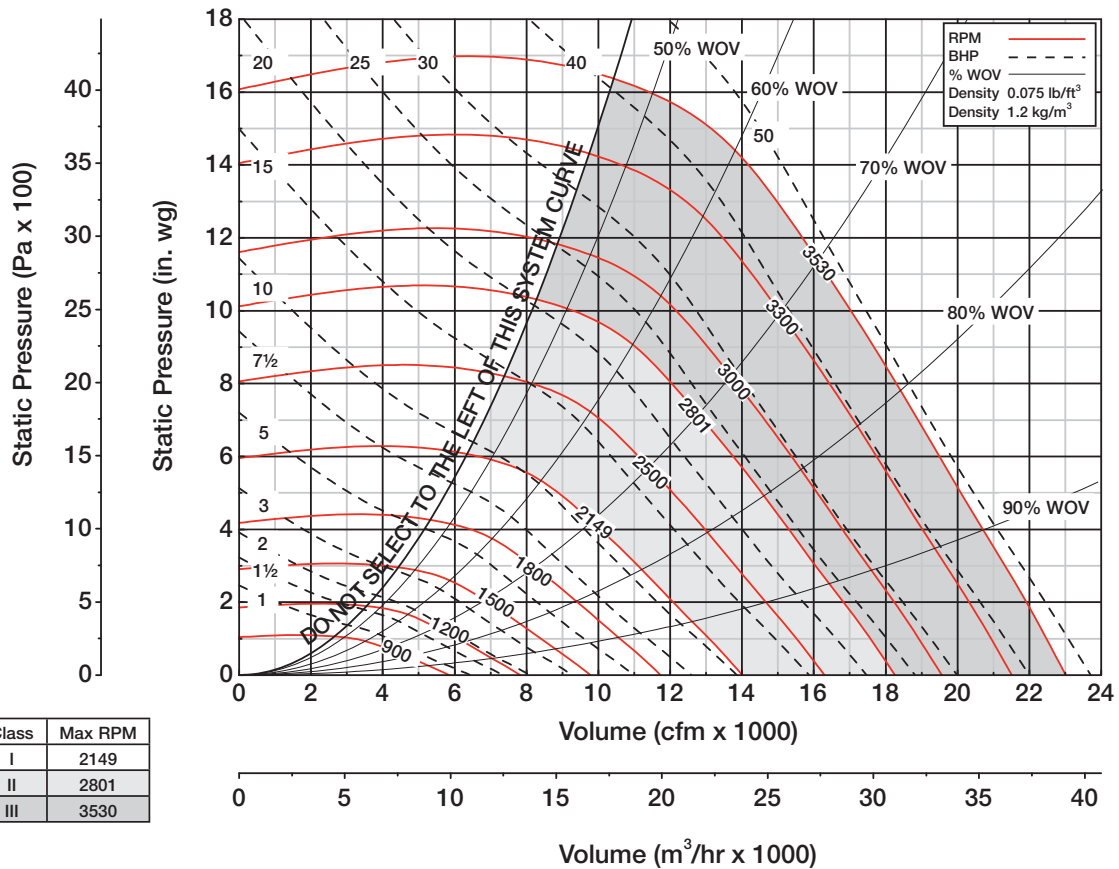
$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 5.09)$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								L_{wA}
		1	2	3	4	5	6	7	8	
700	100	75	79	76	75	72	67	59	53	77
	80	74	79	76	75	71	66	59	53	76
	60	72	74	76	75	71	66	59	53	76
	50	73	74	76	75	71	66	59	53	76
	40	72	74	76	75	71	66	59	53	76
1000	100	79	84	83	79	75	73	67	59	81
	80	77	83	81	76	73	70	63	55	79
	60	76	80	77	75	73	69	63	55	78
	50	76	79	77	75	73	69	63	56	78
	40	77	80	76	75	73	69	63	56	78
1400	100	87	87	89	87	82	80	77	68	89
	80	84	85	88	85	79	76	71	63	86
	60	83	83	85	84	78	74	70	65	85
	50	86	85	84	84	78	74	71	66	85
	40	86	84	84	84	79	74	71	66	85
2000	100	97	97	97	99	95	91	91	89	101
	80	96	97	95	98	92	88	86	80	98
	60	94	94	92	94	90	86	83	79	95
	50	93	93	92	94	89	85	83	79	95
	40	94	93	91	93	89	85	83	80	95
2800	100	101	100	101	105	100	97	97	97	106
	80	99	97	98	103	97	93	91	88	103
	60	95	97	97	99	94	91	89	86	100
	50	96	98	97	99	94	91	90	87	100
	40	96	100	98	100	94	91	90	87	101
3750	100	109	108	106	112	108	104	103	103	113
	80	106	105	104	109	105	100	98	96	110
	60	102	105	103	106	102	98	96	94	108
	50	102	106	104	106	102	98	97	94	107
	40	102	107	105	107	103	99	97	94	108

RPM	%WOV	Outlet Sound Power, L_{wo}								L_{woA}
		1	2	3	4	5	6	7	8	
700	100	90	83	75	68	69	63	53	46	74
	80	88	80	75	66	68	61	52	45	73
	60	85	77	74	65	67	61	52	45	72
	50	87	78	74	65	67	61	52	45	72
	40	89	79	74	66	67	61	52	45	72
1000	100	93	85	83	76	75	72	64	53	80
	80	92	84	81	74	72	68	59	51	78
	60	90	83	80	72	71	66	59	52	77
	50	92	83	80	71	71	66	60	53	77
	40	94	84	80	71	71	66	60	53	77
1400	100	99	92	93	84	82	80	75	66	89
	80	96	90	90	82	79	76	69	59	86
	60	96	90	89	80	77	73	68	62	85
	50	97	88	87	79	77	73	68	63	84
	40	99	91	88	79	78	73	68	63	84
2000	100	105	97	97	96	91	89	86	82	98
	80	102	95	94	93	88	85	80	71	94
	60	102	93	92	91	85	82	77	72	92
	50	103	94	93	91	85	81	77	73	92
	40	104	96	93	91	85	82	77	73	92
2800	100	111	104	104	105	100	98	95	94	107
	80	110	101	101	102	98	95	90	86	103
	60	108	99	99	98	94	91	87	83	100
	50	109	102	99	98	94	91	87	83	100
	40	111	104	101	98	93	91	87	84	100
3750	100	119	112	110	112	108	106	102	101	114
	80	118	110	107	109	105	103	98	94	111
	60	117	108	105	105	102	99	95	91	107
	50	117	110	106	105	101	98	95	91	107
	40	118	113	108	105	101	98	95	91	108

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



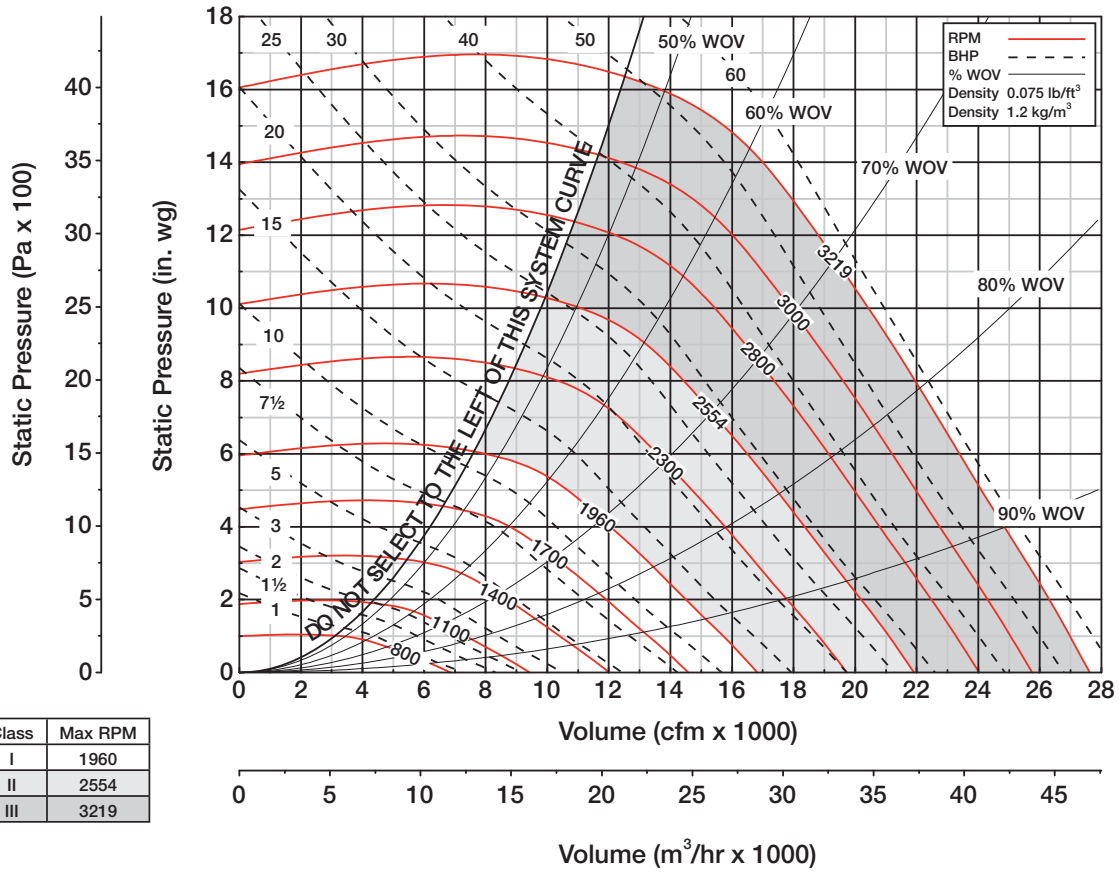
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 6.52)$$

Sound Power [dB Ref 10⁻¹² watts]

		Inlet Sound Power, L_{wi}									
RPM	%WOV	1	2	3	4	5	6	7	8	L_{wA}	
600	100	76	75	74	76	68	62	56	51	75	
	80	74	73	71	74	67	60	54	50	73	
	60	73	70	69	74	67	60	54	50	73	
	50	72	70	69	74	67	60	54	50	73	
	40	72	70	68	75	67	60	54	50	74	
900	100	78	89	84	82	77	72	65	60	83	
	80	78	87	82	78	72	68	60	54	80	
	60	75	82	77	77	72	67	60	55	78	
	50	74	79	75	76	72	67	61	56	77	
	40	76	78	74	76	72	67	61	56	77	
1200	100	83	90	90	89	84	81	74	69	90	
	80	82	86	87	87	80	77	69	65	87	
	60	82	82	82	83	79	76	69	65	84	
	50	78	81	80	82	78	75	69	65	83	
	40	78	82	80	82	78	75	70	66	83	
1700	100	89	91	97	94	90	88	82	77	96	
	80	86	89	94	92	89	85	79	74	94	
	60	86	85	92	88	85	82	76	73	90	
	50	85	85	89	87	84	81	77	74	89	
	40	87	86	89	86	84	81	77	74	89	
2500	100	97	99	102	107	99	96	92	88	106	
	80	95	97	99	104	96	93	88	85	103	
	60	92	92	98	99	94	91	87	85	100	
	50	93	92	98	98	93	91	87	85	99	
	40	95	94	98	99	92	91	89	87	100	
3530	100	103	107	109	112	110	105	102	98	114	
	80	101	105	106	110	108	102	98	94	111	
	60	98	101	103	106	104	100	97	93	108	
	50	99	102	104	105	103	99	96	93	108	
	40	101	104	105	105	103	99	97	95	108	

		Outlet Sound Power, L_{wo}									
RPM	%WOV	1	2	3	4	5	6	7	8	L_{woA}	
600	100	89	80	74	68	66	59	52	47	72	
	80	89	79	71	64	63	54	47	44	70	
	60	81	75	68	62	61	54	47	45	67	
	50	80	74	67	62	62	54	48	45	66	
	40	81	74	67	63	62	54	48	45	67	
900	100	93	95	85	78	77	71	64	58	84	
	80	89	92	83	74	72	65	58	53	80	
	60	86	84	77	73	69	64	58	54	76	
	50	86	82	75	72	69	63	58	54	75	
	40	88	83	75	71	68	63	58	55	74	
1200	100	100	92	90	85	85	80	74	67	89	
	80	95	90	88	82	81	74	67	61	86	
	60	91	86	83	77	77	71	65	61	81	
	50	91	85	82	76	76	71	65	61	80	
	40	92	85	80	75	75	70	65	62	80	
1700	100	104	96	97	92	92	88	84	76	96	
	80	102	93	95	90	91	86	80	73	94	
	60	99	90	92	86	86	82	76	71	91	
	50	99	91	91	85	85	80	75	71	89	
	40	100	91	91	84	83	80	75	71	89	
2500	100	110	105	104	111	103	98	94	89	110	
	80	107	102	100	106	99	94	90	84	106	
	60	104	97	96	99	96	92	87	82	101	
	50	105	98	95	98	94	90	86	82	99	
	40	108	101	96	95	93	89	86	82	98	
3530	100	116	115	112	116	114	108	104	99	118	
	80	113	112	108	112	110	104	99	94	114	
	60	110	108	104	105	105	102	97	92	109	
	50	111	109	104	104	103	100	96	92	108	
	40	114	113	106	102	102	99	95	91	107	

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	1960
II	2554
III	3219

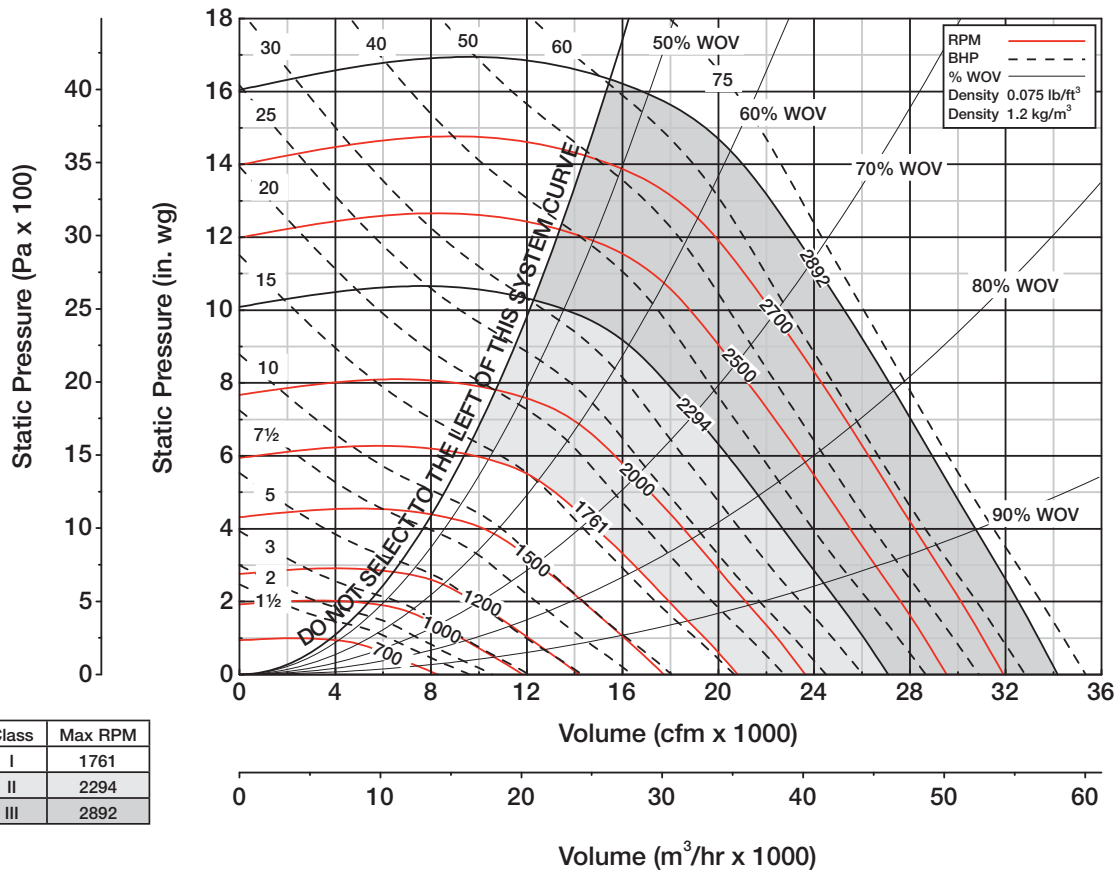
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 8.58)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
550	100	78	75	74	78	68	62	56	52	76
	80	76	73	71	75	67	60	54	50	74
	60	75	70	70	76	67	60	54	50	74
	50	75	69	69	76	67	60	54	50	75
	40	74	69	69	77	67	60	54	50	75
800	100	79	91	83	82	76	72	64	60	83
	80	80	89	81	78	72	67	59	54	80
	60	77	83	76	77	71	67	59	54	77
	50	76	80	74	76	71	67	60	55	77
	40	77	78	74	76	71	67	60	55	77
1100	100	85	92	91	89	85	81	74	70	90
	80	84	88	88	87	81	77	69	65	87
	60	83	84	83	83	79	76	70	65	85
	50	80	83	82	83	79	76	70	66	84
	40	80	83	82	83	78	75	70	66	84
1600	100	91	94	98	95	92	89	83	78	97
	80	88	91	96	93	90	86	80	75	95
	60	87	88	93	89	86	83	78	75	92
	50	87	88	91	88	85	82	78	75	91
	40	89	88	90	87	85	82	78	76	90
2200	100	98	100	103	105	98	96	91	88	105
	80	95	97	100	103	96	92	87	84	102
	60	92	93	98	99	93	91	87	84	100
	50	93	93	98	97	93	90	87	84	99
	40	95	95	98	98	92	90	88	86	99
3219	100	105	109	110	114	110	106	102	98	115
	80	103	106	107	111	107	102	98	94	112
	60	100	102	105	107	104	101	97	94	109
	50	101	103	105	105	103	100	97	94	108
	40	103	105	106	106	103	99	98	96	108

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
550	100	90	78	75	68	67	59	52	47	73
	80	90	77	71	64	64	54	47	45	70
	60	83	74	68	63	62	54	48	45	67
	50	82	73	67	63	63	54	48	45	67
	40	82	73	67	63	63	54	48	46	67
800	100	93	96	83	77	77	71	63	57	84
	80	90	92	81	73	72	64	57	52	80
	60	87	84	76	72	69	63	57	53	75
	50	87	82	74	72	68	62	57	54	74
	40	89	83	73	71	68	62	57	54	74
1100	100	99	93	90	86	86	80	74	67	90
	80	96	92	88	83	81	74	67	61	86
	60	91	87	83	78	77	71	66	61	82
	50	91	86	82	77	76	71	66	62	81
	40	92	86	81	76	75	70	66	62	80
1600	100	105	98	98	94	93	89	85	77	98
	80	102	95	96	91	92	87	81	73	96
	60	100	91	93	87	87	83	77	72	92
	50	100	92	92	86	86	81	76	72	91
	40	100	93	92	85	84	81	76	72	90
2200	100	109	105	106	109	102	97	93	88	109
	80	107	101	101	105	98	93	89	83	105
	60	103	97	96	99	96	91	86	81	100
	50	104	98	95	97	94	89	85	81	99
	40	107	100	95	95	92	89	85	81	98
3219	100	117	115	113	118	114	108	104	99	118
	80	115	112	109	113	110	104	100	94	114
	60	111	108	105	107	106	102	97	92	110
	50	112	109	104	105	104	100	96	92	108
	40	116	112	106	103	102	99	95	92	107

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	1761
II	2294
III	2892

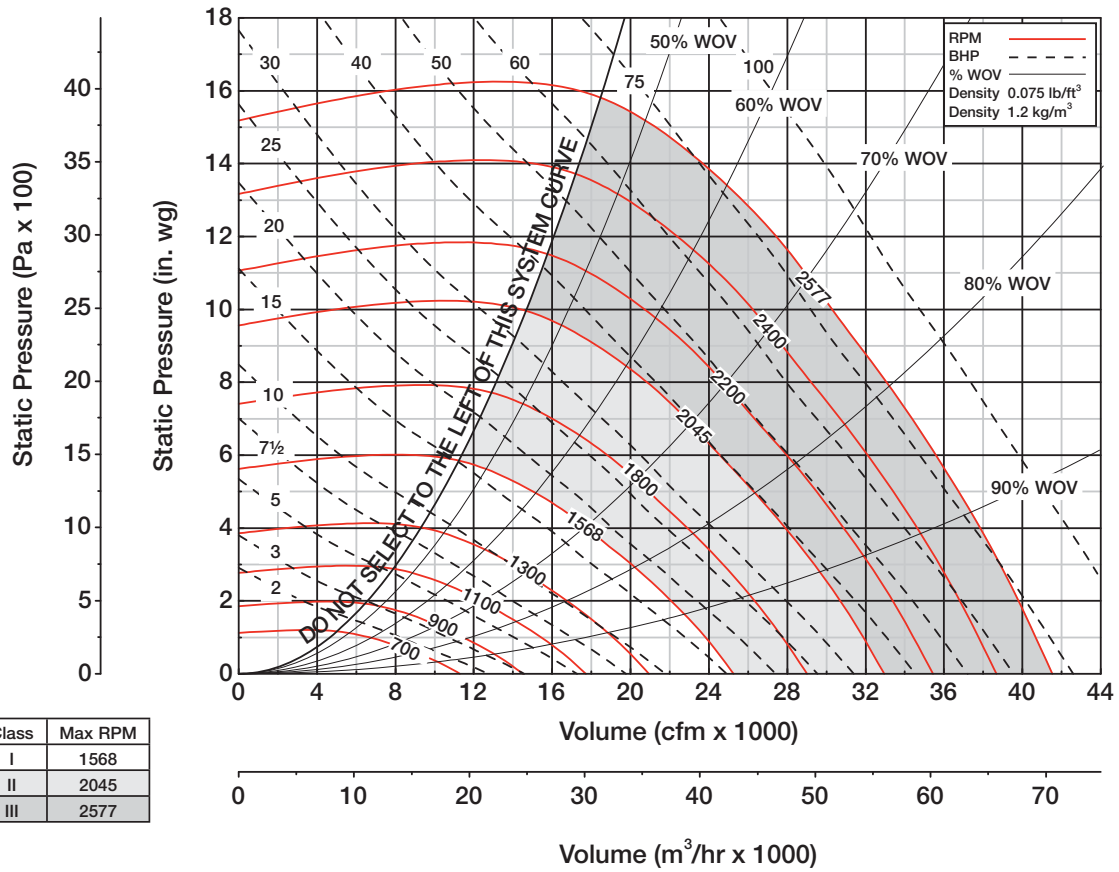
$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 11.8)$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L _{wi}								L _{wiA}
		1	2	3	4	5	6	7	8	
500	100	80	76	76	78	69	62	57	52	77
	80	78	74	73	75	67	60	55	51	74
	60	77	71	72	76	67	60	55	51	74
	50	77	70	72	76	67	60	55	51	75
700	100	82	90	83	81	75	71	63	60	83
	80	81	88	80	77	71	66	58	53	79
	60	78	82	76	76	71	66	59	54	77
	50	77	79	75	75	71	66	59	54	76
1000	100	87	94	92	90	86	82	75	70	91
	80	85	90	89	87	82	77	70	65	88
	60	84	86	85	84	80	76	70	66	85
	50	81	85	83	83	79	76	70	66	85
1400	100	91	95	98	95	92	88	83	77	97
	80	89	92	96	93	90	85	79	75	95
	60	87	89	93	89	86	82	77	74	91
	50	87	89	91	88	85	82	78	75	90
2000	100	99	101	105	106	99	96	92	88	106
	80	97	99	102	103	96	93	88	85	103
	60	93	95	99	99	94	91	87	85	100
	50	94	95	98	98	93	91	87	85	99
2892	100	107	109	111	115	110	106	102	98	116
	80	105	107	108	112	107	103	98	95	113
	60	101	103	106	108	104	101	97	94	110
	50	103	103	107	107	103	100	97	94	109
40	105	105	107	107	103	100	98	96	109	

RPM	%WOV	Outlet Sound Power, L _{wo}								L _{woA}
		1	2	3	4	5	6	7	8	
500	100	92	79	75	69	67	59	52	48	73
	80	92	78	72	65	64	54	48	46	71
	60	84	74	68	64	62	54	48	46	68
	50	83	73	68	64	63	54	49	46	67
700	100	94	93	82	77	76	69	62	56	82
	80	91	90	80	73	70	63	56	52	79
	60	87	83	76	72	68	62	57	53	75
	50	86	81	74	71	68	62	57	54	74
1000	100	100	95	91	87	86	81	74	67	90
	80	96	93	89	84	81	74	67	61	87
	60	92	89	84	79	78	72	66	62	83
	50	92	88	82	78	77	71	66	62	82
1400	100	104	98	98	94	93	89	83	76	97
	80	101	96	96	92	91	86	80	72	95
	60	98	92	92	88	87	82	76	72	91
	50	98	93	91	87	85	81	76	72	90
2000	100	110	106	108	110	102	98	94	88	109
	80	107	102	104	105	99	94	89	83	105
	60	103	98	98	100	96	91	86	81	101
	50	104	98	97	98	94	90	86	81	99
2892	100	119	115	114	119	113	108	104	99	119
	80	116	112	110	115	110	104	100	94	115
	60	112	108	105	108	106	102	97	92	110
	50	113	109	105	106	104	100	96	92	109
40	117	112	106	104	103	99	96	92	108	

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi}, L_{wiA} and outlet L_{wo}, L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	1568
II	2045
III	2577

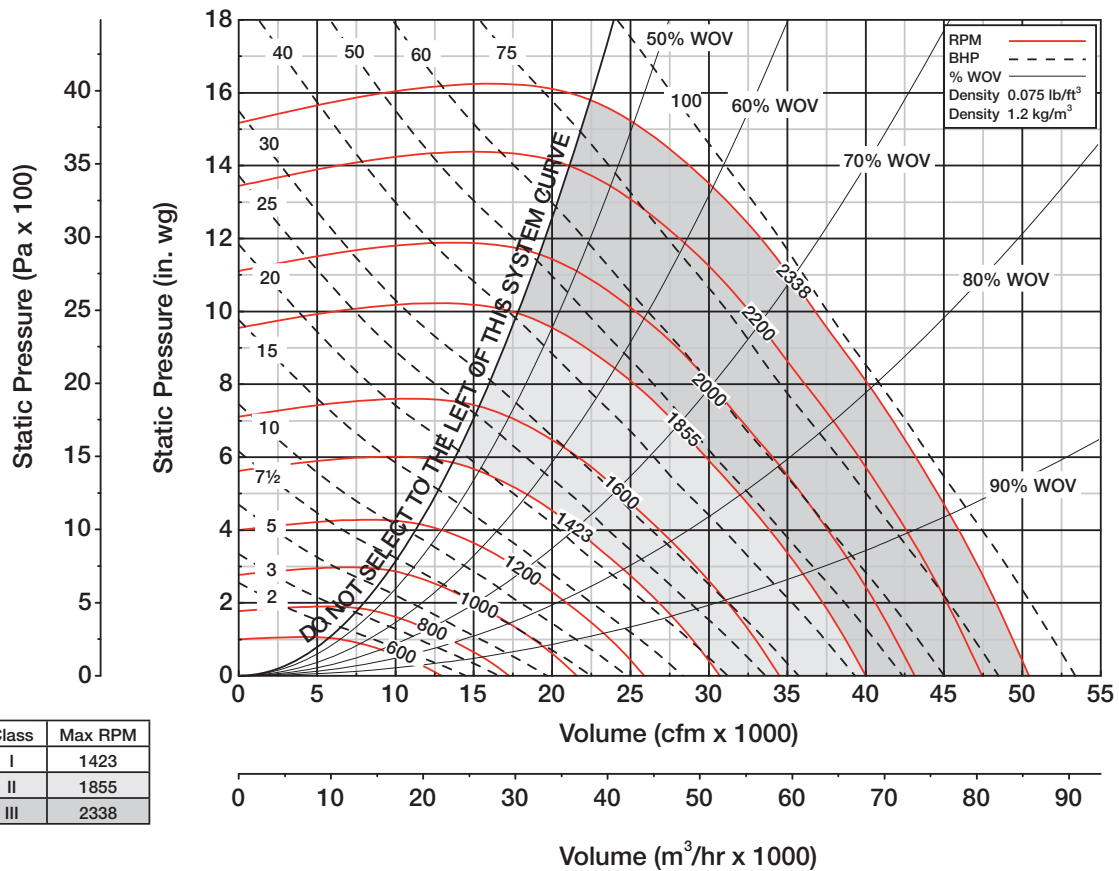
$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 16.1)$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								L_{wA}
		1	2	3	4	5	6	7	8	
450	100	81	80	78	72	67	60	53	50	74
	80	80	80	76	68	64	57	51	48	72
	60	77	78	73	68	64	57	52	49	70
	50	77	78	71	68	64	57	52	49	70
650	100	88	87	82	76	74	69	61	57	80
	80	87	85	79	74	72	66	59	56	78
	60	84	82	77	73	71	64	58	55	76
	50	83	81	76	72	71	64	59	56	75
900	100	90	94	88	85	81	78	72	69	87
	80	87	91	85	83	79	74	69	68	85
	60	85	87	82	82	78	73	70	69	83
	50	85	86	81	82	77	73	70	69	83
1300	100	95	94	101	94	90	88	84	80	97
	80	92	91	98	90	87	83	80	78	94
	60	90	88	93	87	84	80	79	78	90
	50	92	87	92	86	84	80	79	78	90
1800	100	99	94	98	93	90	88	86	85	96
	80	99	96	106	99	95	92	88	84	102
	60	95	92	102	95	92	89	86	83	98
	50	95	92	100	94	91	88	86	84	98
2577	100	108	111	112	116	108	106	103	99	115
	80	106	108	108	112	105	101	98	94	112
	60	101	104	104	108	101	98	95	92	108
	50	101	104	104	106	100	98	95	93	107
40	105	107	104	104	99	97	95	94	106	

RPM	%WOV	Outlet Sound Power, L_{wo}								L_{woA}
		1	2	3	4	5	6	7	8	
450	100	82	81	76	71	67	58	50	45	73
	80	78	78	73	68	62	52	45	43	70
	60	73	73	68	67	62	52	47	44	68
	50	74	73	66	66	62	53	47	44	67
650	100	97	93	81	76	75	68	60	53	82
	80	97	92	80	74	71	63	55	50	80
	60	90	86	74	71	69	61	56	52	75
	50	87	83	72	70	69	61	57	53	74
900	100	93	97	88	83	82	78	71	63	88
	80	90	95	84	79	78	73	67	61	84
	60	88	91	81	76	75	69	64	61	81
	50	88	87	79	75	74	68	65	61	79
1300	100	93	89	79	74	74	70	66	62	80
	1300	100	100	101	94	92	89	84	77	98
	80	96	96	97	91	88	83	78	71	94
	60	92	93	95	86	84	79	75	72	90
1800	100	107	106	105	103	101	98	95	87	106
	80	103	101	102	99	97	93	88	82	102
	60	100	99	99	95	94	88	85	80	98
	50	100	99	98	94	92	87	84	80	97
2577	100	104	101	96	92	90	85	85	81	95
	2577	100	113	114	113	112	110	108	104	115
	80	110	111	109	109	106	103	98	93	111
	60	106	107	107	106	102	99	94	90	107
40	106	107	106	104	100	97	93	90	106	
	110	111	106	102	98	95	93	91	105	

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	1423
II	1855
III	2338

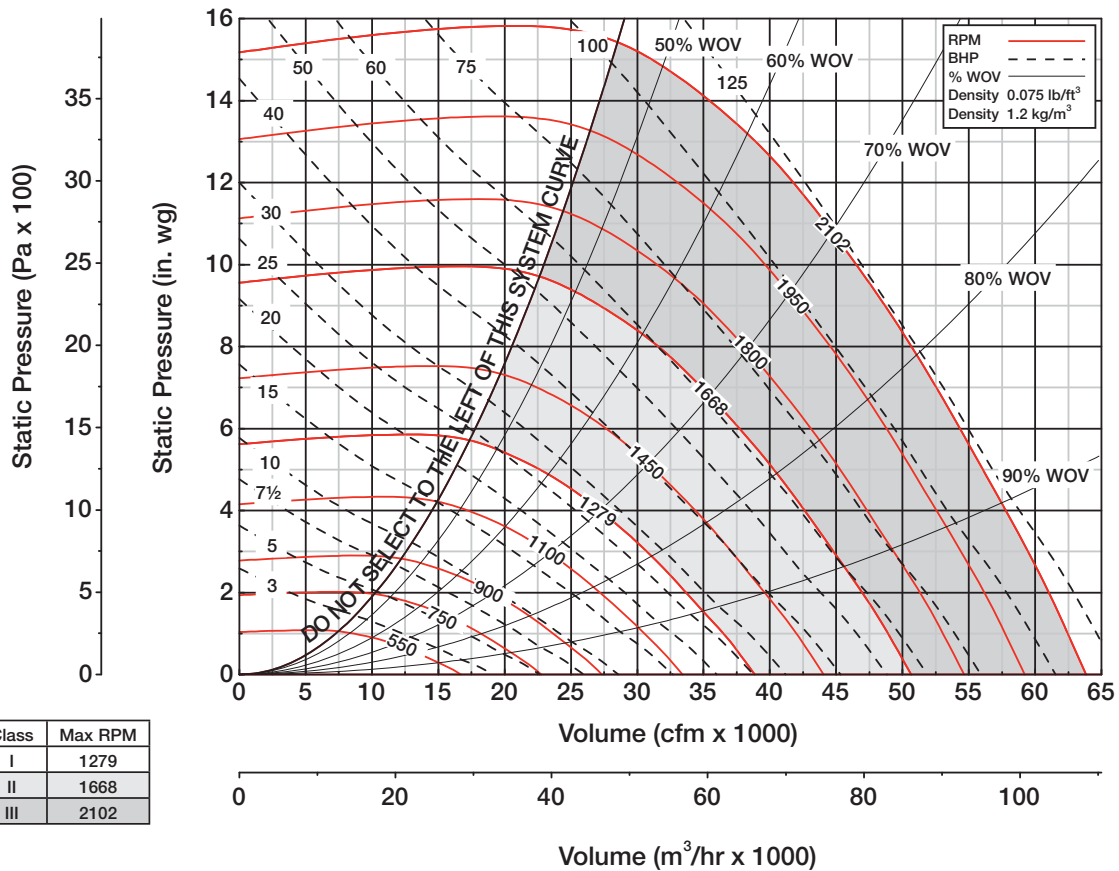
$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 21.6)$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								L_{wA}
		1	2	3	4	5	6	7	8	
400	100	83	80	78	71	67	59	53	50	74
	80	81	80	75	68	64	56	51	48	71
	60	79	78	72	68	64	56	51	49	70
	50	78	78	71	67	64	56	51	49	70
	40	78	79	69	67	64	56	51	50	70
600	100	90	86	83	77	76	69	61	58	80
	80	89	84	80	75	73	67	59	57	78
	60	86	81	78	74	72	65	59	56	76
	50	85	80	76	73	72	65	59	57	76
	40	83	79	76	72	72	65	60	57	76
800	100	91	94	88	85	81	77	72	69	87
	80	88	91	85	83	78	74	69	68	85
	60	86	88	82	82	77	73	70	69	83
	50	85	87	82	81	77	73	71	69	83
	40	85	85	80	81	77	73	71	69	83
1200	100	96	96	102	94	91	89	84	81	98
	80	94	93	98	91	88	84	81	79	94
	60	91	90	94	88	85	81	80	79	91
	50	93	89	93	87	85	81	81	79	91
	40	93	89	92	86	85	81	80	79	90
1700	100	104	101	113	103	100	99	95	90	108
	80	102	97	109	100	96	94	90	86	104
	60	98	93	104	96	94	90	87	85	100
	50	98	93	103	95	93	90	88	86	99
	40	101	95	100	94	92	89	88	87	98
2338	100	110	111	115	115	108	106	104	99	116
	80	107	108	111	111	105	102	98	94	112
	60	103	104	107	107	102	99	95	93	108
	50	103	104	106	106	101	98	95	94	107
	40	107	106	105	104	99	97	96	94	106

RPM	%WOV	Outlet Sound Power, L_{wo}								L_{wA}
		1	2	3	4	5	6	7	8	
400	100	83	81	75	71	67	56	49	45	73
	80	79	78	73	68	61	51	45	43	70
	60	74	74	67	67	61	51	47	44	68
	50	75	73	65	66	61	51	47	44	67
	40	78	76	66	66	63	53	48	44	68
600	100	98	93	81	77	76	69	60	54	82
	80	98	92	80	74	72	63	55	50	80
	60	91	85	74	72	70	61	57	53	76
	50	88	83	72	71	70	62	57	54	74
	40	89	84	72	70	70	62	58	54	75
800	100	94	98	87	83	82	77	70	62	88
	80	91	95	84	79	78	73	66	60	84
	60	89	91	80	76	75	68	64	61	80
	50	89	87	78	75	74	68	64	61	79
	40	91	89	78	74	74	69	66	62	80
1200	100	101	101	102	95	93	89	85	77	99
	80	97	97	98	91	89	84	78	72	95
	60	94	94	95	87	85	79	76	73	91
	50	94	94	94	85	83	79	76	73	90
	40	96	94	93	85	83	79	77	74	89
1700	100	109	107	107	105	103	99	97	88	108
	80	105	103	104	101	99	94	90	83	104
	60	102	100	101	97	95	89	86	82	100
	50	102	100	100	95	94	88	86	82	98
	40	106	102	97	93	91	87	86	83	97
2338	100	114	115	114	113	111	108	105	99	116
	80	111	111	110	109	107	103	99	93	112
	60	107	108	108	106	103	99	94	90	108
	50	107	108	107	104	101	97	94	91	107
	40	112	111	106	102	99	96	93	91	105

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{wA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	1279
II	1668
III	2102

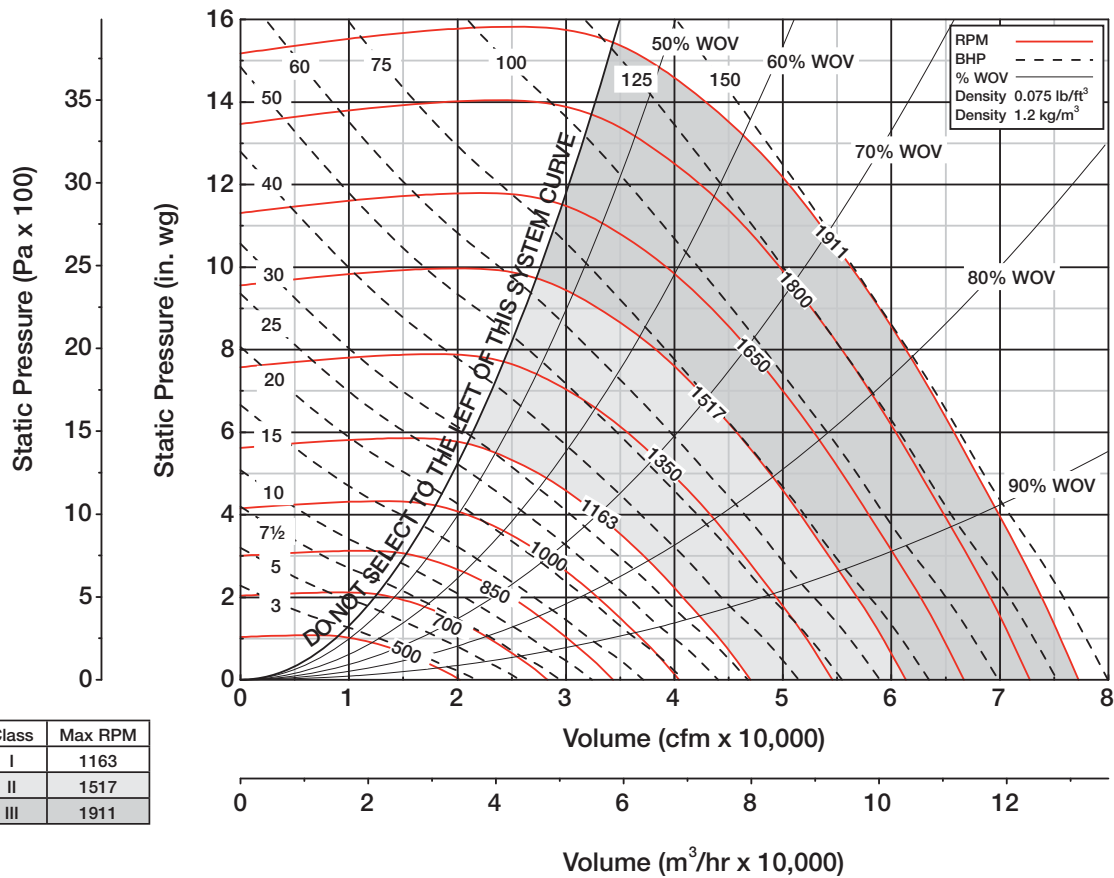
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 30.4)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
400	100	86	84	82	74	70	62	56	53	77
	80	85	83	79	71	67	59	54	52	75
	60	83	82	76	71	67	59	54	53	73
	50	82	81	74	71	67	59	55	53	73
	40	82	82	72	71	67	59	55	53	73
600	100	94	90	86	80	79	73	64	61	84
	80	93	87	84	78	77	70	62	60	82
	60	89	84	81	77	75	68	62	60	80
	50	89	84	80	76	75	68	63	60	79
	40	87	83	79	76	75	68	63	61	79
800	100	94	98	91	88	84	81	75	72	90
	80	91	95	88	86	81	77	72	71	88
	60	89	91	86	85	80	76	73	72	86
	50	89	90	85	85	80	76	74	72	86
	40	92	89	84	84	80	76	74	73	86
1100	100	98	99	102	95	92	89	85	82	99
	80	95	96	99	92	89	85	82	80	95
	60	92	92	94	89	86	82	81	80	92
	50	93	91	93	88	86	82	82	80	92
	40	94	91	92	87	85	82	82	80	91
1500	100	104	104	112	103	100	98	95	89	108
	80	101	100	108	100	96	93	89	85	103
	60	97	96	104	96	94	90	87	85	100
	50	97	96	102	95	93	90	88	86	99
	40	100	97	100	94	92	90	88	87	98
2102	100	112	111	118	114	109	107	104	99	116
	80	109	108	113	111	105	102	99	95	112
	60	105	104	109	107	102	99	96	93	108
	50	105	104	108	105	101	98	96	94	107
	40	109	106	107	104	100	98	96	95	107

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
400	100	86	84	78	74	70	59	52	48	76
	80	83	81	76	71	65	54	48	47	73
	60	77	77	70	71	64	54	50	48	71
	50	78	76	68	70	64	54	50	47	70
	40	82	79	69	69	66	56	51	48	71
600	100	101	96	84	80	79	72	63	57	85
	80	101	95	83	78	75	66	59	53	83
	60	95	88	77	75	73	65	60	56	79
	50	91	86	75	74	73	65	61	57	78
	40	93	87	75	73	73	65	61	57	78
800	100	97	101	90	87	85	81	73	66	91
	80	94	98	87	83	81	76	69	63	87
	60	92	94	83	79	78	71	67	64	84
	50	92	91	82	78	77	71	68	64	82
	40	95	92	81	77	77	73	69	65	83
1100	100	102	103	102	96	94	90	85	77	100
	80	98	99	98	92	90	84	79	72	95
	60	95	96	95	88	85	80	77	74	92
	50	95	95	94	87	84	80	77	74	91
	40	97	95	93	86	83	80	78	74	90
1500	100	109	108	107	105	103	99	96	87	108
	80	105	104	104	101	99	94	89	82	103
	60	102	101	101	97	95	89	86	81	100
	50	102	101	99	95	93	88	86	81	98
	40	106	102	97	93	91	87	86	83	97
2102	100	116	116	115	113	111	108	105	99	116
	80	112	112	112	110	107	103	99	93	112
	60	108	109	109	106	103	99	95	91	108
	50	108	108	107	104	102	97	94	91	107
	40	113	111	106	102	99	96	94	92	106

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



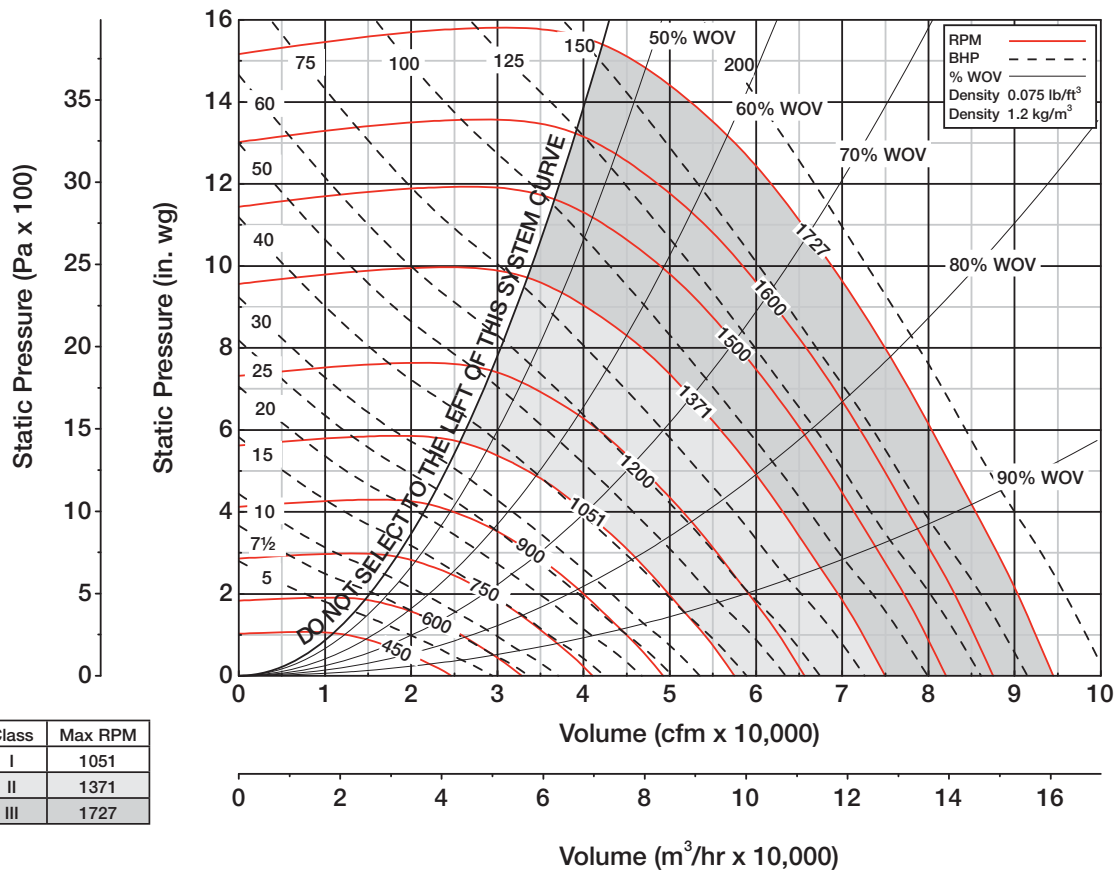
$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 40.4)$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
350	100	86	83	80	73	68	61	55	52	76
	80	85	82	77	70	66	58	54	51	73
	60	82	81	75	70	66	58	54	52	72
	50	82	80	73	70	66	58	54	52	72
	40	82	80	72	70	66	58	54	52	72
500	100	94	87	83	78	76	69	62	59	81
	80	93	85	81	77	74	67	61	58	79
	60	90	82	79	75	72	65	60	58	78
	50	89	81	78	75	72	65	61	58	77
	40	87	80	77	74	72	66	61	59	77
700	100	95	96	91	87	84	80	75	71	90
	80	92	93	88	85	81	76	72	71	87
	60	90	90	86	84	79	75	73	72	86
	50	89	89	85	84	79	75	73	72	86
	40	91	88	84	84	79	76	74	72	85
1000	100	99	101	102	96	92	90	86	82	99
	80	95	98	99	92	89	86	83	80	96
	60	93	94	94	89	86	83	82	80	93
	50	94	93	93	88	86	83	82	81	92
	40	94	92	92	88	86	83	82	81	92
1400	100	105	106	113	104	101	100	96	90	108
	80	103	102	108	101	97	94	90	86	104
	60	98	99	104	97	95	91	88	86	101
	50	99	98	103	96	94	91	89	87	100
	40	101	99	101	95	93	91	90	88	99
1911	100	113	111	120	114	109	107	105	99	117
	80	111	108	116	110	106	103	99	95	113
	60	107	104	111	106	103	99	96	94	109
	50	107	104	110	105	102	99	97	95	108
	40	110	106	108	104	101	98	97	95	107

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
350	100	85	83	77	73	68	58	51	47	75
	80	82	80	75	70	63	53	48	46	72
	60	77	75	70	69	62	53	49	47	70
	50	78	75	68	69	62	54	50	47	69
	40	81	77	69	68	64	55	50	47	70
500	100	101	92	82	79	77	69	61	54	83
	80	101	91	80	76	72	63	56	51	81
	60	94	84	76	74	70	62	58	54	77
	50	91	82	74	73	70	63	59	55	75
	40	92	83	73	72	70	63	59	55	75
700	100	98	99	89	86	84	79	72	64	90
	80	95	96	86	83	80	74	68	62	86
	60	92	92	82	79	77	71	67	64	83
	50	92	89	81	78	76	70	67	64	81
	40	94	90	81	78	76	72	68	65	82
1000	100	103	103	102	97	94	90	85	77	100
	80	99	100	98	93	90	84	79	72	96
	60	96	97	95	89	85	81	77	74	92
	50	96	96	94	87	84	80	77	74	91
	40	98	95	92	86	84	80	78	75	90
1400	100	110	109	108	106	104	101	96	88	109
	80	107	105	105	102	99	95	90	83	104
	60	103	102	102	98	95	90	87	82	101
	50	103	102	100	97	94	89	87	82	99
	40	107	103	98	94	92	88	87	84	98
1911	100	117	116	116	114	112	109	106	98	117
	80	114	112	113	110	108	103	99	93	113
	60	110	109	110	106	104	99	95	91	109
	50	110	109	108	105	102	98	95	91	107
	40	114	111	106	102	100	96	95	92	106

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	1051
II	1371
III	1727

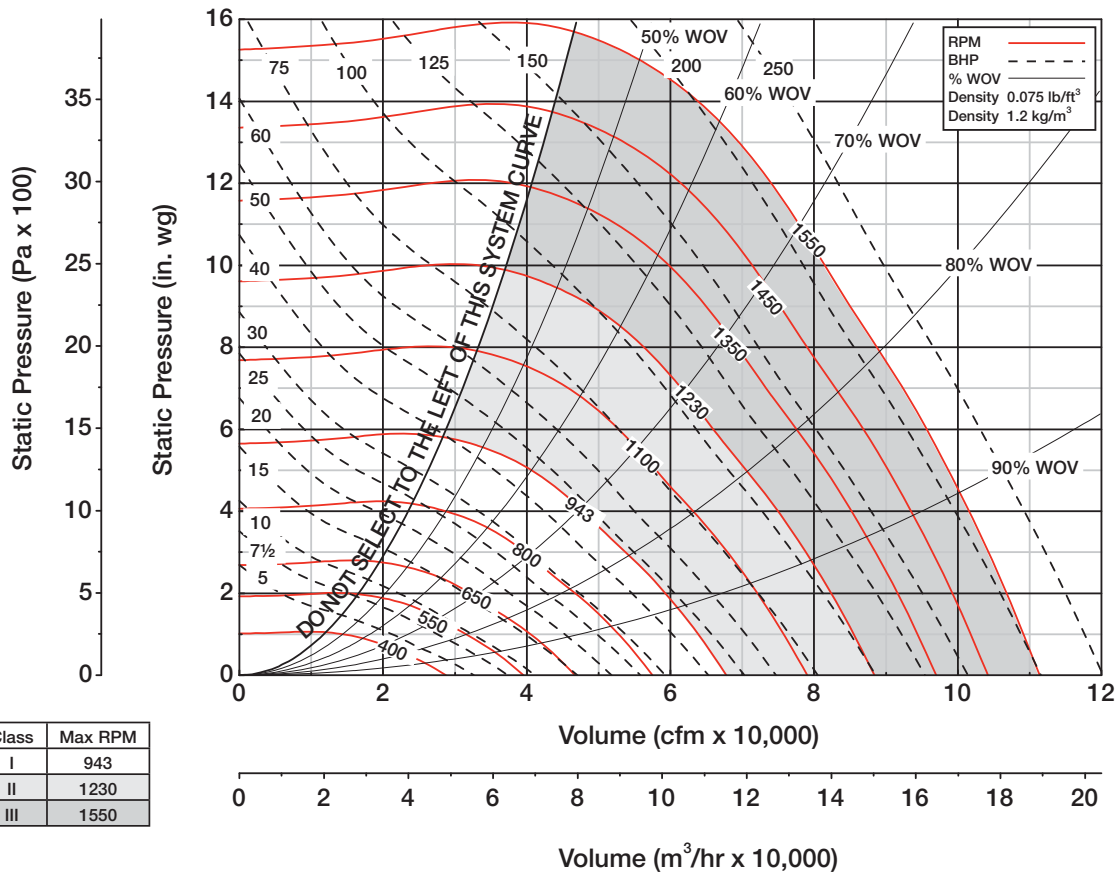
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 54.7)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
300	100	82	81	79	75	71	65	61	55	77
	80	81	81	79	75	71	65	61	55	77
	60	80	81	78	74	71	65	60	55	76
	50	80	79	78	74	71	65	60	54	76
	40	81	80	78	74	71	65	61	55	76
400	100	87	83	82	77	75	69	61	56	80
	80	85	80	80	76	74	67	59	54	78
	60	81	78	79	76	73	67	59	54	78
	50	80	78	79	76	74	67	61	55	78
	40	81	78	78	75	74	67	60	56	78
600	100	98	95	91	85	85	78	73	68	89
	80	95	91	87	82	83	74	68	64	86
	60	93	88	85	81	82	73	68	65	85
	50	92	87	84	81	82	73	68	65	85
	40	93	87	85	80	82	74	69	66	85
800	100	98	105	98	92	92	87	82	77	97
	80	95	103	94	89	87	82	78	74	93
	60	93	99	90	85	84	78	75	73	90
	50	92	98	89	84	83	78	76	74	89
	40	92	97	88	84	83	78	76	74	88
1200	100	106	112	109	104	102	100	96	92	108
	80	102	110	106	100	98	93	89	86	104
	60	98	106	102	96	93	88	86	84	99
	50	99	105	102	96	93	88	86	84	99
	40	103	105	101	95	92	88	87	85	99
1727	100	112	118	122	114	111	109	106	102	118
	80	109	115	120	111	106	104	99	96	115
	60	105	111	116	106	102	99	95	93	110
	50	106	111	115	106	102	99	95	93	110
	40	110	114	115	106	101	99	95	94	110

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
300	100	83	80	74	71	68	60	52	43	73
	80	82	79	74	70	67	60	51	42	72
	60	78	76	72	68	66	58	49	41	70
	50	79	76	72	68	66	58	49	41	71
	40	77	75	71	68	66	58	49	41	70
400	100	98	86	79	76	73	67	58	52	79
	80	93	83	76	73	71	64	56	50	76
	60	93	83	74	71	68	63	54	49	75
	50	90	81	73	71	68	63	54	50	74
	40	89	80	73	71	68	63	55	50	74
600	100	107	100	89	86	83	78	71	65	90
	80	103	98	86	83	79	75	68	63	87
	60	99	92	82	79	76	71	65	61	83
	50	98	91	82	78	75	71	65	61	82
	40	99	92	81	77	75	71	66	62	82
800	100	103	107	96	94	91	87	81	75	97
	80	101	104	93	91	87	82	76	70	94
	60	97	101	89	87	83	77	73	70	90
	50	97	100	88	86	82	77	73	70	89
	40	98	100	87	85	81	77	74	70	89
1200	100	109	113	108	106	103	101	97	91	109
	80	107	110	104	102	99	95	91	84	104
	60	103	106	100	98	94	89	85	81	100
	50	103	105	99	97	93	88	86	81	99
	40	105	104	99	96	92	87	85	81	98
1727	100	116	119	122	114	112	110	107	102	119
	80	113	116	119	110	108	105	101	96	115
	60	110	113	116	106	104	100	95	91	111
	50	110	112	114	105	103	99	95	92	109
	40	111	113	113	104	102	98	94	92	109

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	943
II	1230
III	1550

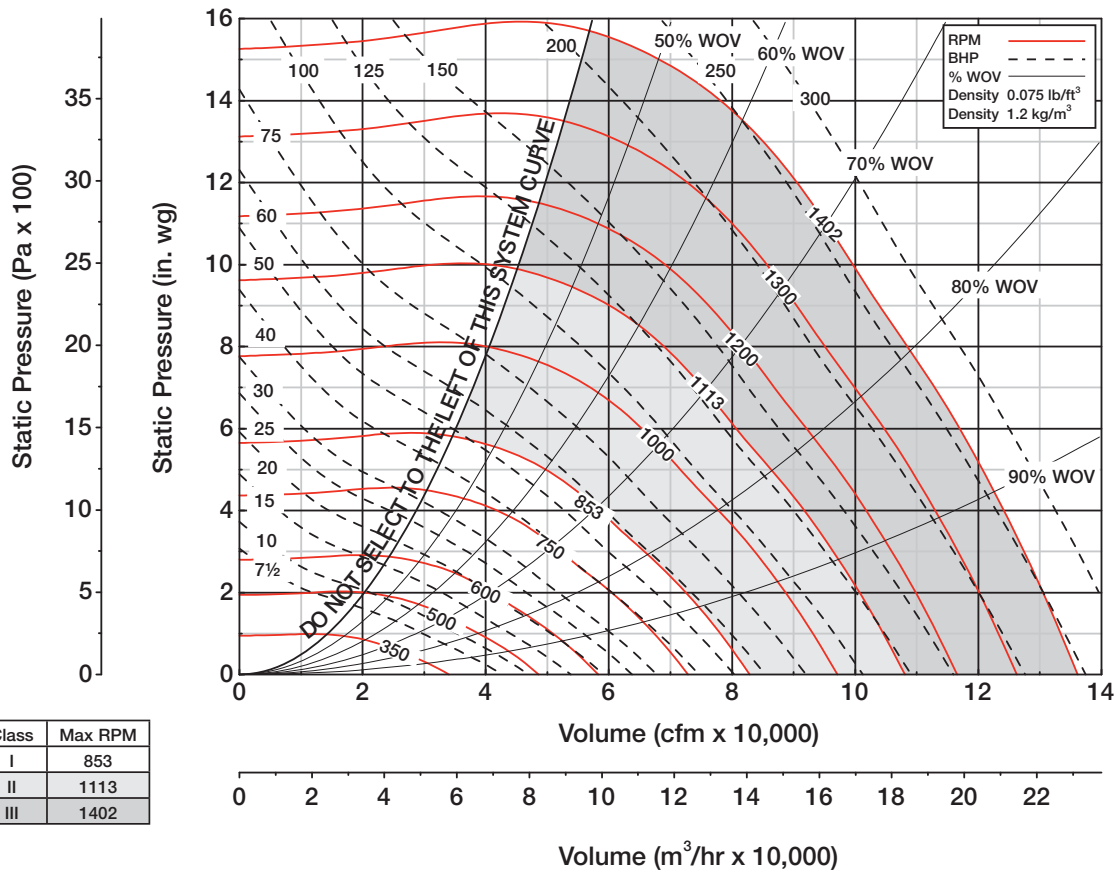
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 71.9)$$

Sound Power [dB Ref 10⁻¹² watts]

		Inlet Sound Power, L_{wi}									
RPM	%WOV	1	2	3	4	5	6	7	8	L_{wA}	
300	100	85	84	82	78	74	68	64	58	80	
	80	85	84	82	77	74	68	64	58	80	
	60	84	84	81	77	74	68	63	58	79	
	50	83	83	81	77	74	68	63	57	79	
	40	85	83	81	77	74	68	64	58	79	
400	100	91	86	85	80	78	72	64	59	83	
	80	89	83	83	79	77	70	62	57	81	
	60	85	82	82	79	76	70	62	57	81	
	50	84	81	82	79	77	70	63	58	81	
	40	85	81	81	78	77	70	63	59	81	
600	100	102	98	94	88	87	81	76	71	92	
	80	99	94	90	85	86	77	71	67	89	
	60	97	91	88	84	85	76	71	68	88	
	50	96	90	87	84	85	76	71	68	88	
	40	96	90	88	83	85	77	72	69	88	
800	100	102	108	101	95	95	90	85	80	100	
	80	99	106	97	92	90	85	81	77	96	
	60	96	102	93	88	87	81	78	76	93	
	50	96	101	92	87	86	81	79	77	92	
	40	96	100	91	87	86	81	79	77	91	
1100	100	108	114	109	104	104	101	97	93	109	
	80	104	112	106	100	98	94	90	86	104	
	60	101	107	101	96	94	89	87	85	100	
	50	101	107	101	96	94	89	87	85	100	
	40	105	107	101	95	93	89	87	86	99	
1550	100	114	119	122	114	111	110	106	102	118	
	80	110	117	120	111	107	103	99	96	115	
	60	107	112	115	106	103	99	95	93	110	
	50	107	113	115	106	102	99	95	94	110	
	40	111	114	115	105	101	98	96	94	110	

		Outlet Sound Power, L_{wo}									
RPM	%WOV	1	2	3	4	5	6	7	8	L_{woA}	
300	100	86	83	77	74	71	63	55	46	76	
	80	85	82	76	73	70	63	54	45	75	
	60	81	79	75	71	69	61	52	44	73	
	50	82	79	75	71	69	61	52	44	74	
	40	80	78	74	71	69	61	52	44	73	
400	100	101	89	82	79	76	70	61	55	82	
	80	96	86	79	76	74	67	59	53	79	
	60	96	86	77	74	71	66	57	52	78	
	50	93	84	76	74	71	66	57	53	77	
	40	92	83	76	74	71	66	58	53	77	
600	100	110	103	92	89	86	81	74	68	93	
	80	106	101	89	86	82	78	71	66	90	
	60	102	95	85	82	79	74	68	64	86	
	50	101	94	85	81	78	74	68	64	85	
	40	102	95	84	80	78	74	69	65	85	
800	100	106	110	99	97	94	90	84	78	100	
	80	104	107	96	94	90	85	79	73	97	
	60	100	104	92	90	86	80	76	73	93	
	50	100	103	91	89	85	80	76	73	92	
	40	101	103	90	88	84	80	77	73	92	
1100	100	111	114	108	106	104	102	97	91	109	
	80	108	111	104	103	99	95	92	85	105	
	60	105	108	99	99	95	89	86	82	101	
	50	105	106	99	98	94	88	86	82	99	
	40	107	105	98	97	93	88	86	82	99	
1550	100	117	120	121	115	113	110	107	102	119	
	80	114	117	118	111	108	105	101	96	115	
	60	111	114	115	107	104	99	95	91	110	
	50	111	113	113	106	103	98	95	92	109	
	40	112	113	112	105	102	98	94	92	109	

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	853
II	1113
III	1402

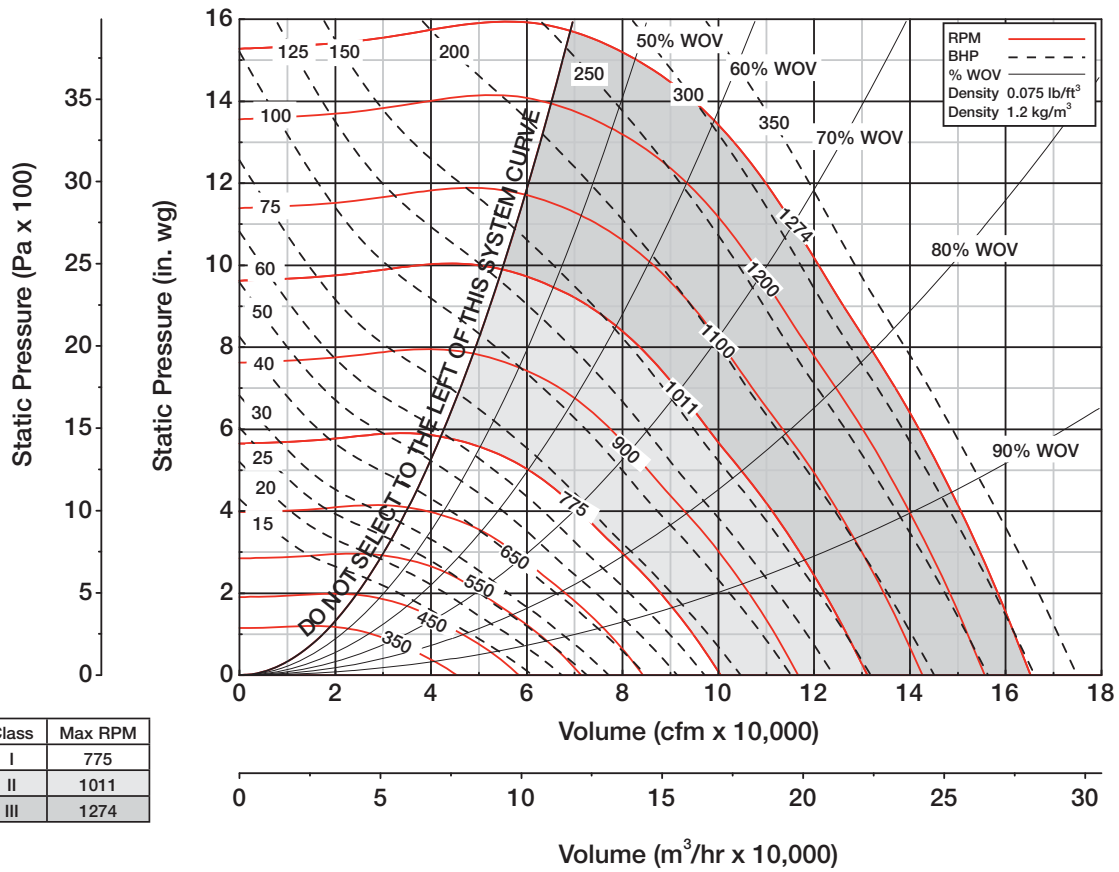
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 97.1)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
250	100	85	83	80	76	72	66	61	55	78
	80	84	82	80	76	72	66	61	55	78
	60	83	82	79	75	72	66	61	55	77
	50	83	81	79	75	72	66	61	54	77
	40	84	81	79	75	72	66	61	56	77
350	100	90	86	84	80	77	71	63	58	82
	80	88	83	82	79	76	69	61	56	81
	60	84	82	82	78	75	69	61	56	80
	50	83	81	81	78	76	69	63	57	80
	40	84	81	81	78	76	69	63	58	80
500	100	102	96	91	86	85	79	73	68	90
	80	99	92	88	84	83	75	69	65	87
	60	97	89	86	83	82	74	69	67	86
	50	96	88	85	83	82	74	70	67	86
	40	96	88	86	83	83	75	70	68	86
700	100	103	107	100	95	94	89	84	79	99
	80	100	104	96	92	89	84	80	76	95
	60	98	101	92	88	86	81	78	76	92
	50	97	99	91	87	85	81	79	76	91
	40	97	98	91	87	85	81	79	76	91
1000	100	110	115	110	105	104	101	97	93	109
	80	106	113	106	101	99	94	91	87	105
	60	103	109	101	97	94	89	87	86	101
	50	103	108	102	97	94	90	88	86	100
	40	107	108	101	96	94	90	88	87	100
1402	100	116	121	121	114	112	110	106	102	118
	80	112	118	119	111	107	104	100	96	114
	60	108	114	114	106	103	99	96	94	110
	50	109	114	114	106	103	99	96	94	110
	40	113	115	114	105	102	99	96	95	110

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
250	100	85	80	75	72	69	60	51	43	74
	80	84	79	74	71	68	60	51	42	73
	60	80	77	73	69	67	58	49	41	71
	50	81	77	73	69	67	58	49	41	72
	40	79	77	72	69	67	58	49	41	71
350	100	99	88	81	78	75	68	60	54	81
	80	94	85	78	76	73	66	58	52	78
	60	94	84	76	74	70	64	56	51	77
	50	92	83	76	73	70	64	56	52	76
	40	91	82	76	73	71	65	57	52	76
500	100	109	99	90	87	83	78	72	65	91
	80	106	96	87	84	80	75	69	63	88
	60	102	92	83	80	77	72	66	62	84
	50	101	90	82	79	76	71	66	63	83
	40	102	91	82	79	76	71	67	63	83
700	100	107	108	99	97	94	89	83	77	99
	80	105	105	96	94	89	84	78	72	96
	60	102	102	91	89	85	80	76	72	92
	50	101	100	90	88	84	79	76	72	91
	40	101	100	90	88	83	79	76	73	91
1000	100	112	116	109	107	105	102	97	91	110
	80	109	113	104	103	100	96	92	85	106
	60	106	109	100	99	95	90	86	82	101
	50	106	108	99	98	94	89	87	82	100
	40	107	107	99	97	93	89	87	82	99
1402	100	118	121	121	115	113	111	107	102	119
	80	115	119	117	111	109	105	101	95	115
	60	112	115	113	107	104	99	95	91	110
	50	112	114	112	106	103	99	95	92	109
	40	114	114	111	106	102	98	95	92	109

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



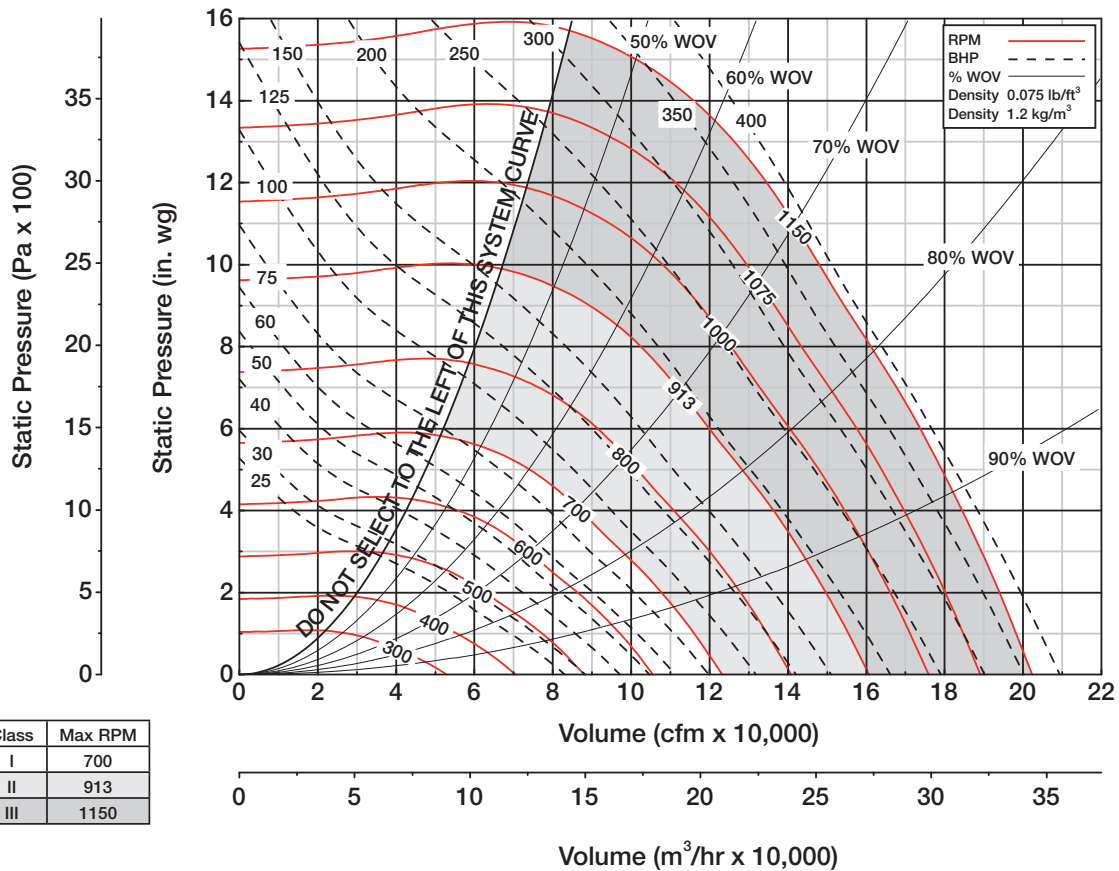
$\% \text{WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 130)$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								L_{wA}
		1	2	3	4	5	6	7	8	
250	100	88	86	83	79	75	69	64	58	81
	80	88	86	83	78	75	69	64	58	81
	60	86	85	82	78	75	69	64	58	80
	50	86	84	82	78	75	69	64	57	80
	40	87	84	82	78	75	69	64	59	80
350	100	93	89	87	83	80	73	66	61	85
	80	91	86	85	82	79	72	64	59	84
	60	88	85	85	81	78	71	64	59	83
	50	86	84	84	81	78	72	66	60	83
	40	87	84	84	81	78	72	66	61	83
500	100	105	99	94	89	88	82	76	71	93
	80	102	95	91	87	86	78	72	68	90
	60	100	92	89	86	85	77	72	69	89
	50	99	91	88	86	85	77	73	70	89
	40	100	91	89	86	86	78	73	71	89
700	100	106	110	103	98	97	92	87	82	102
	80	104	107	99	95	92	87	83	79	98
	60	101	104	95	91	89	84	81	79	95
	50	100	102	94	90	88	84	82	79	94
	40	100	101	93	90	88	84	82	79	94
900	100	111	117	109	105	104	101	97	93	110
	80	108	115	106	101	99	94	91	87	105
	60	104	110	101	97	94	90	88	86	101
	50	105	110	101	97	94	90	88	86	101
	40	107	109	101	96	94	90	89	87	100
1274	100	117	122	121	114	113	110	107	103	119
	80	114	120	118	111	108	104	100	96	114
	60	110	116	113	106	104	99	96	94	110
	50	111	115	113	106	104	99	96	95	110
	40	115	116	113	105	103	99	97	95	110

RPM	%WOV	Outlet Sound Power, L_{wo}								L_{woA}
		1	2	3	4	5	6	7	8	
250	100	88	83	78	75	72	63	54	46	77
	80	87	82	77	74	71	63	54	45	76
	60	83	80	76	72	69	61	51	44	74
	50	84	80	76	72	70	61	52	44	74
	40	82	80	75	72	70	61	52	44	74
350	100	102	91	84	81	78	71	63	57	84
	80	97	88	81	79	75	69	61	55	81
	60	97	87	79	77	73	67	59	54	80
	50	95	85	79	76	73	67	59	55	79
	40	94	85	79	76	73	68	60	55	79
500	100	112	102	93	90	86	81	75	68	94
	80	109	99	90	87	83	78	72	66	91
	60	105	94	86	83	80	75	69	65	87
	50	104	93	85	82	79	74	69	65	86
	40	105	94	85	82	79	74	69	66	86
700	100	110	111	102	100	97	92	86	80	102
	80	108	108	99	97	92	87	81	75	99
	60	104	105	94	92	88	83	79	75	95
	50	104	103	93	91	87	82	79	75	94
	40	104	103	93	90	86	82	79	75	94
900	100	114	117	109	107	105	102	97	91	110
	80	111	114	105	104	100	96	91	84	106
	60	107	110	101	99	95	90	86	82	101
	50	107	109	100	98	94	89	87	82	100
	40	108	108	99	97	93	89	87	82	100
1274	100	119	123	120	116	114	111	107	102	119
	80	117	120	116	112	109	105	102	95	115
	60	113	116	112	108	105	99	96	92	110
	50	113	115	111	107	104	99	96	92	109
	40	115	115	110	106	103	98	96	92	109

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



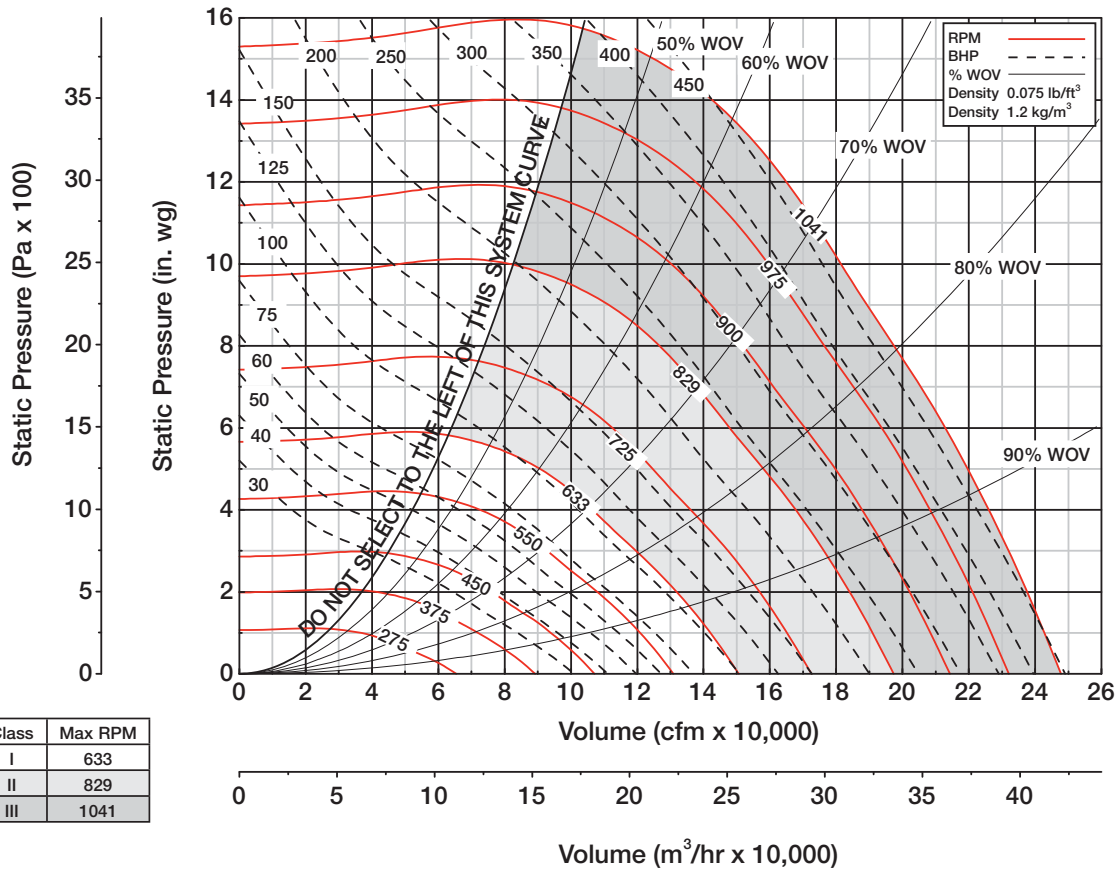
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 176)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
200	100	85	83	80	76	71	66	61	55	78
	80	85	83	80	76	71	66	61	55	78
	60	84	83	79	76	71	65	60	54	77
	50	83	82	79	76	71	65	60	53	77
	40	84	82	79	76	71	66	61	55	77
300	100	92	89	86	82	78	72	65	60	84
	80	90	86	84	81	77	70	63	57	82
	60	86	85	84	81	77	70	63	58	82
	50	85	84	83	81	77	70	64	59	82
	40	86	84	83	81	77	70	64	59	82
400	100	104	96	90	88	84	78	73	68	90
	80	100	92	88	86	81	74	69	65	87
	60	98	89	86	85	81	73	70	67	86
	50	97	88	85	85	81	74	70	67	86
	40	98	89	85	85	81	74	71	68	86
600	100	108	108	101	98	96	91	86	81	101
	80	105	105	97	94	91	86	82	78	97
	60	102	101	94	90	87	83	80	78	93
	50	101	100	93	90	87	83	81	78	93
	40	101	99	92	89	86	83	81	79	93
800	100	113	117	109	106	104	101	97	93	110
	80	110	115	105	102	98	94	91	87	105
	60	106	110	101	97	94	90	88	86	101
	50	106	110	101	97	94	90	88	87	101
	40	108	110	100	96	93	90	89	87	100
1150	100	119	124	120	114	114	111	107	103	119
	80	115	122	117	111	109	104	100	97	115
	60	111	118	112	106	104	99	97	95	110
	50	112	117	112	106	104	99	97	95	110
	40	116	117	112	105	103	99	98	96	110

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
200	100	85	80	75	73	67	58	50	41	74
	80	84	79	75	72	67	58	49	40	73
	60	80	77	73	70	65	56	47	40	71
	50	81	77	73	70	65	56	48	40	71
	40	80	76	72	70	65	56	48	40	71
300	100	99	89	83	80	76	69	61	55	83
	80	95	86	80	78	74	67	59	53	80
	60	95	85	78	76	72	65	58	53	78
	50	92	83	78	75	72	65	58	54	77
	40	91	83	78	76	72	66	59	54	78
400	100	110	97	90	87	83	77	71	64	90
	80	107	94	87	84	80	74	68	63	87
	60	103	90	83	81	76	71	66	62	84
	50	102	89	83	79	76	71	66	62	83
	40	103	89	82	79	75	71	67	63	83
600	100	111	108	101	99	95	91	84	78	101
	80	108	105	98	95	91	85	79	73	97
	60	105	102	94	91	86	81	78	74	93
	50	104	100	93	90	85	81	78	74	92
	40	105	100	92	89	85	81	78	74	92
800	100	115	117	109	107	105	102	97	91	110
	80	112	114	105	103	100	96	91	84	106
	60	108	110	101	99	94	90	86	82	101
	50	108	109	100	98	93	90	87	82	100
	40	108	108	100	97	92	89	87	82	100
1150	100	121	124	119	117	114	112	107	102	120
	80	118	121	115	113	110	106	102	95	115
	60	115	118	110	109	105	100	96	92	111
	50	115	116	109	108	104	99	96	92	110
	40	116	115	109	107	103	98	96	92	109

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	633
II	829
III	1041

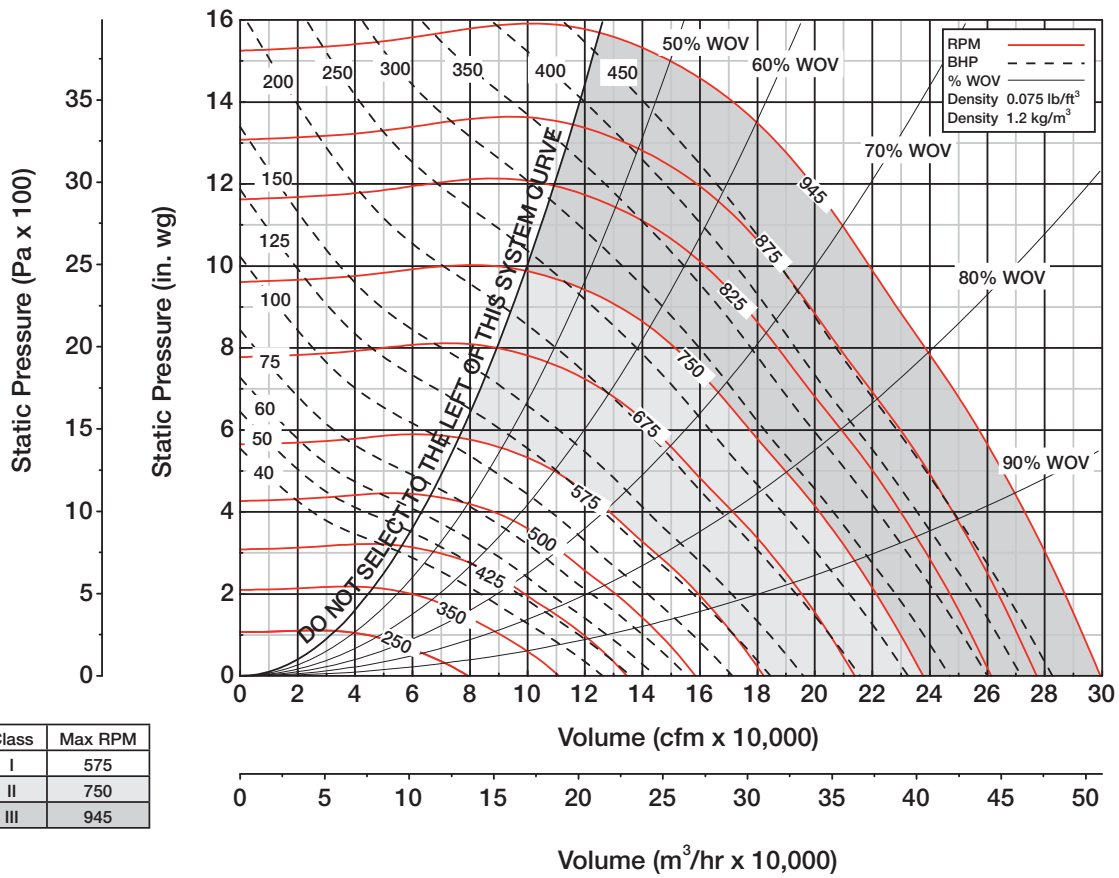
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 238)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wiA}
200	100	89	86	83	79	74	69	64	58	81
	80	88	86	83	79	74	69	64	58	81
	60	88	86	82	79	74	69	64	58	80
	50	87	85	82	79	74	69	63	57	80
	40	88	85	82	79	74	69	64	58	80
300	100	95	92	89	85	82	75	68	63	87
	80	93	89	87	84	80	73	66	60	85
	60	90	88	87	84	80	73	66	61	85
	50	89	87	86	84	80	73	67	62	85
	40	90	87	86	84	80	73	67	62	85
400	100	107	99	94	91	87	81	76	71	93
	80	104	95	91	89	84	77	72	68	90
	60	101	92	89	88	84	77	73	70	89
	50	101	91	88	88	84	77	73	70	89
	40	101	92	89	88	84	77	74	71	89
550	100	110	108	101	99	96	91	86	81	102
	80	107	105	98	95	91	87	82	78	98
	60	104	101	94	91	87	84	81	79	94
	50	103	100	93	91	87	84	82	79	94
	40	103	99	93	90	87	84	82	80	93
750	100	115	118	110	108	106	102	98	95	111
	80	113	115	107	103	100	95	92	88	106
	60	108	111	102	99	95	91	89	88	102
	50	108	111	102	99	95	92	90	88	102
	40	110	110	101	98	95	92	90	89	102
1041	100	121	126	120	115	114	111	107	103	120
	80	117	124	116	111	109	104	101	97	115
	60	113	119	112	107	105	99	97	96	111
	50	114	119	112	107	105	100	98	96	111
	40	118	118	111	106	104	100	98	97	110

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
200	100	88	83	79	76	70	61	53	44	77
	80	87	82	78	75	70	61	52	43	76
	60	84	80	76	73	68	59	50	43	74
	50	84	80	76	73	68	59	51	43	74
	40	83	79	75	73	68	59	51	43	74
300	100	102	92	86	83	79	72	64	58	86
	80	98	89	83	81	77	70	62	56	83
	60	98	88	81	79	75	68	61	56	81
	50	95	87	81	78	75	68	61	57	81
	40	94	86	81	79	75	69	62	57	81
400	100	113	100	93	90	86	80	74	67	93
	80	110	97	90	87	83	77	71	66	90
	60	106	93	86	84	79	74	69	65	87
	50	105	92	86	83	79	74	69	65	86
	40	106	92	85	82	79	74	70	66	86
550	100	113	108	102	100	96	91	85	78	102
	80	110	105	99	96	91	86	80	74	98
	60	107	101	95	92	87	82	78	75	94
	50	106	100	94	91	86	82	78	75	93
	40	106	100	93	90	86	82	79	75	93
750	100	117	117	111	109	106	103	98	92	112
	80	114	114	107	105	101	97	92	85	107
	60	110	110	103	100	95	91	87	83	102
	50	109	109	102	99	94	91	88	83	101
	40	110	108	101	98	94	91	88	83	101
1041	100	122	125	119	117	115	112	108	102	120
	80	119	123	114	114	110	106	102	95	116
	60	116	119	110	109	105	100	97	92	111
	50	116	117	109	108	104	99	97	93	110
	40	117	117	109	107	103	99	97	93	109

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wiA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	575
II	750
III	945

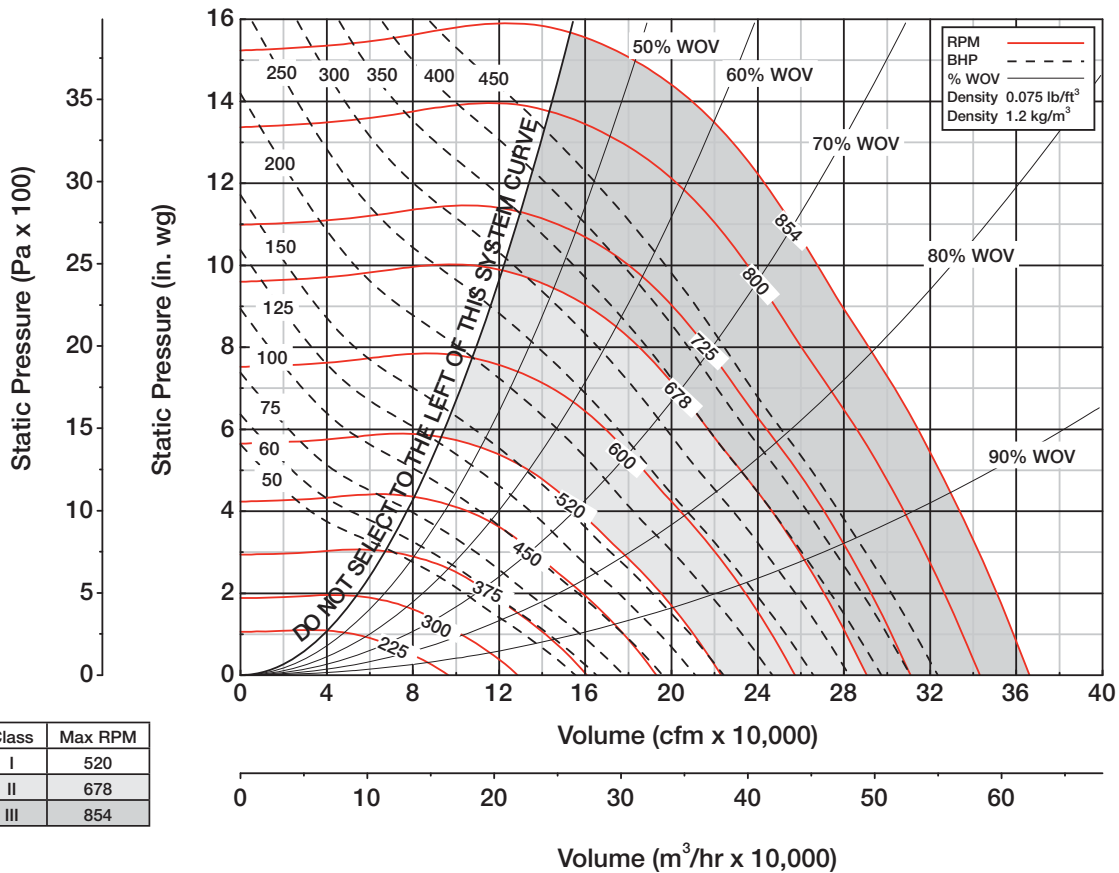
$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 317)$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
180	100	89	86	83	79	74	69	63	57	81
	80	89	86	83	79	74	69	63	57	81
	60	88	86	82	79	74	68	63	57	80
	50	87	85	82	79	74	68	63	56	80
	40	88	85	82	79	74	69	64	58	80
250	100	93	90	86	84	79	72	66	60	85
	80	90	88	85	82	77	69	63	58	83
	60	88	87	85	82	77	70	64	58	83
	50	87	86	84	82	77	70	65	59	83
	40	87	86	84	82	77	70	65	60	83
350	100	104	98	92	91	86	80	75	70	92
	80	101	95	90	89	83	76	71	68	89
	60	98	92	88	88	82	76	72	69	88
	50	97	91	88	88	82	76	72	69	88
	40	97	91	88	88	82	77	73	70	89
500	100	112	108	101	100	96	91	86	81	102
	80	109	105	98	96	91	87	83	79	98
	60	106	101	94	92	88	84	82	79	94
	50	105	100	93	92	87	84	82	80	94
	40	104	99	93	91	87	85	82	80	94
700	100	117	118	111	109	107	103	99	96	112
	80	115	116	107	104	100	96	93	89	107
	60	111	111	103	100	96	93	91	89	103
	50	110	111	103	100	96	93	91	89	103
	40	112	110	102	99	95	93	92	90	103
945	100	122	127	120	116	115	111	107	104	120
	80	119	125	116	112	109	105	101	97	115
	60	115	120	112	107	105	100	98	96	111
	50	115	120	112	107	105	100	98	97	111
	40	118	120	111	106	104	100	99	97	111

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
180	100	88	83	79	76	69	61	52	44	77
	80	87	82	78	75	69	61	51	42	76
	60	84	80	76	73	67	58	50	42	74
	50	84	80	76	73	67	58	50	42	74
	40	83	79	75	73	67	58	50	42	74
250	100	98	89	84	82	77	69	62	55	83
	80	94	86	82	79	74	66	60	54	81
	60	94	85	80	77	72	65	58	53	79
	50	92	84	79	77	72	65	59	55	78
	40	91	83	79	77	73	65	59	55	78
350	100	110	98	93	90	85	79	73	66	92
	80	107	95	89	87	82	76	70	65	89
	60	102	91	86	83	79	73	68	64	85
	50	101	90	85	82	78	73	69	65	85
	40	102	90	85	82	78	73	69	65	85
500	100	114	107	102	100	96	91	85	78	102
	80	112	104	100	96	91	86	80	73	98
	60	109	100	95	92	87	82	79	75	94
	50	107	99	94	91	86	82	79	75	93
	40	108	99	94	90	86	82	79	76	93
700	100	118	118	112	110	108	104	98	93	113
	80	115	114	108	106	102	98	92	85	108
	60	112	110	104	101	96	92	88	84	103
	50	111	109	103	100	95	92	89	84	102
	40	111	108	102	99	95	92	89	84	102
945	100	123	127	119	118	115	112	107	102	121
	80	121	124	115	114	110	106	102	95	116
	60	117	120	111	110	105	100	97	92	112
	50	117	119	110	108	104	100	97	93	111
	40	118	118	109	108	103	99	97	93	110

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	520
II	678
III	854

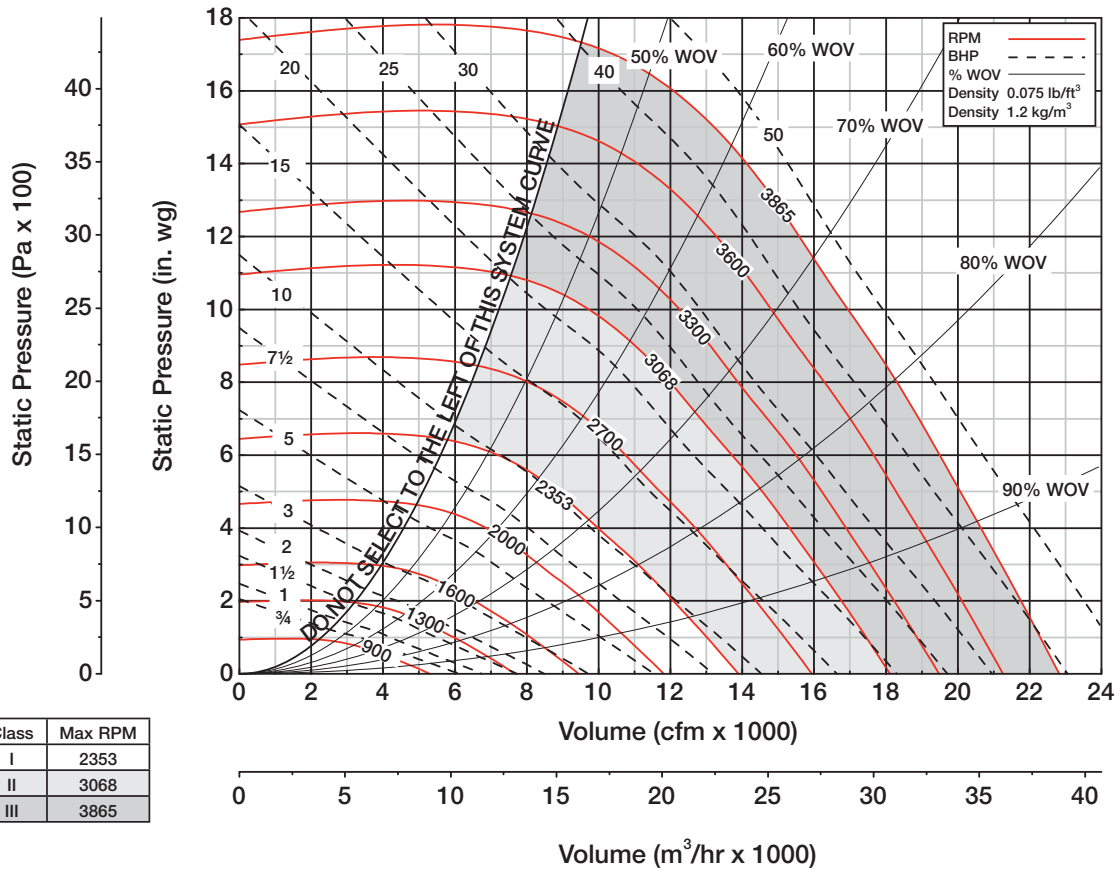
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 429)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
150	100	87	85	81	77	71	67	61	55	79
	80	87	85	80	77	71	67	61	55	79
	60	87	84	80	77	71	66	61	55	78
	50	85	84	80	77	71	66	60	53	78
	40	86	84	80	77	71	67	61	56	78
200	100	89	88	83	81	75	67	62	57	82
	80	86	86	82	80	73	65	60	54	80
	60	84	85	82	80	73	65	60	55	80
	50	84	85	82	80	73	67	61	56	80
	40	84	85	81	80	73	66	62	57	80
300	100	101	97	90	91	84	79	74	69	91
	80	97	94	88	89	80	74	70	66	89
	60	94	91	87	88	79	74	71	68	88
	50	93	90	86	88	79	74	71	68	88
	40	93	91	86	88	80	75	72	70	88
400	100	111	104	98	98	93	88	83	78	99
	80	108	100	95	93	88	84	80	76	95
	60	105	96	91	90	84	81	79	77	92
	50	104	95	90	89	84	82	80	77	91
	40	102	94	90	89	84	82	80	78	91
600	100	118	116	109	109	106	102	98	95	111
	80	116	112	106	104	99	95	92	88	106
	60	112	108	102	100	94	92	90	88	102
	50	111	108	101	99	94	92	90	89	102
	40	111	107	101	98	94	93	91	89	101
854	100	124	128	120	116	115	112	108	104	121
	80	121	126	116	112	109	105	101	98	116
	60	117	122	112	108	105	101	99	97	112
	50	117	121	112	108	105	101	99	97	112
	40	119	121	111	107	104	101	99	98	111

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
150	100	86	81	77	74	66	58	49	41	75
	80	85	80	76	73	66	57	48	39	74
	60	82	78	74	72	64	55	47	39	72
	50	82	78	74	72	64	55	47	39	72
	40	81	77	74	72	64	55	47	39	72
200	100	92	85	82	79	73	64	58	52	80
	80	89	82	79	77	70	62	56	50	77
	60	89	80	77	74	69	60	55	50	75
	50	87	79	76	74	69	60	56	51	75
	40	86	79	77	74	69	61	56	52	75
300	100	106	95	92	89	84	77	71	64	90
	80	103	92	89	86	81	74	69	63	87
	60	98	88	85	82	77	71	67	63	84
	50	97	88	84	81	77	71	67	64	83
	40	98	88	83	81	77	72	68	64	83
400	100	113	102	100	97	93	87	81	74	99
	80	110	99	97	93	88	82	76	70	95
	60	107	95	93	89	83	79	76	72	91
	50	105	94	92	88	83	79	76	72	90
	40	106	93	91	87	83	80	76	73	90
600	100	119	114	111	109	107	103	97	91	112
	80	116	110	108	105	101	97	90	83	107
	60	112	106	104	100	95	91	87	83	102
	50	111	105	103	99	94	92	87	83	101
	40	110	105	102	98	93	91	87	83	100
854	100	125	128	120	118	116	113	108	102	121
	80	122	125	116	114	110	107	102	95	117
	60	119	122	112	110	105	101	97	92	112
	50	118	120	111	109	104	100	97	93	111
	40	119	119	110	108	103	100	97	93	110

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



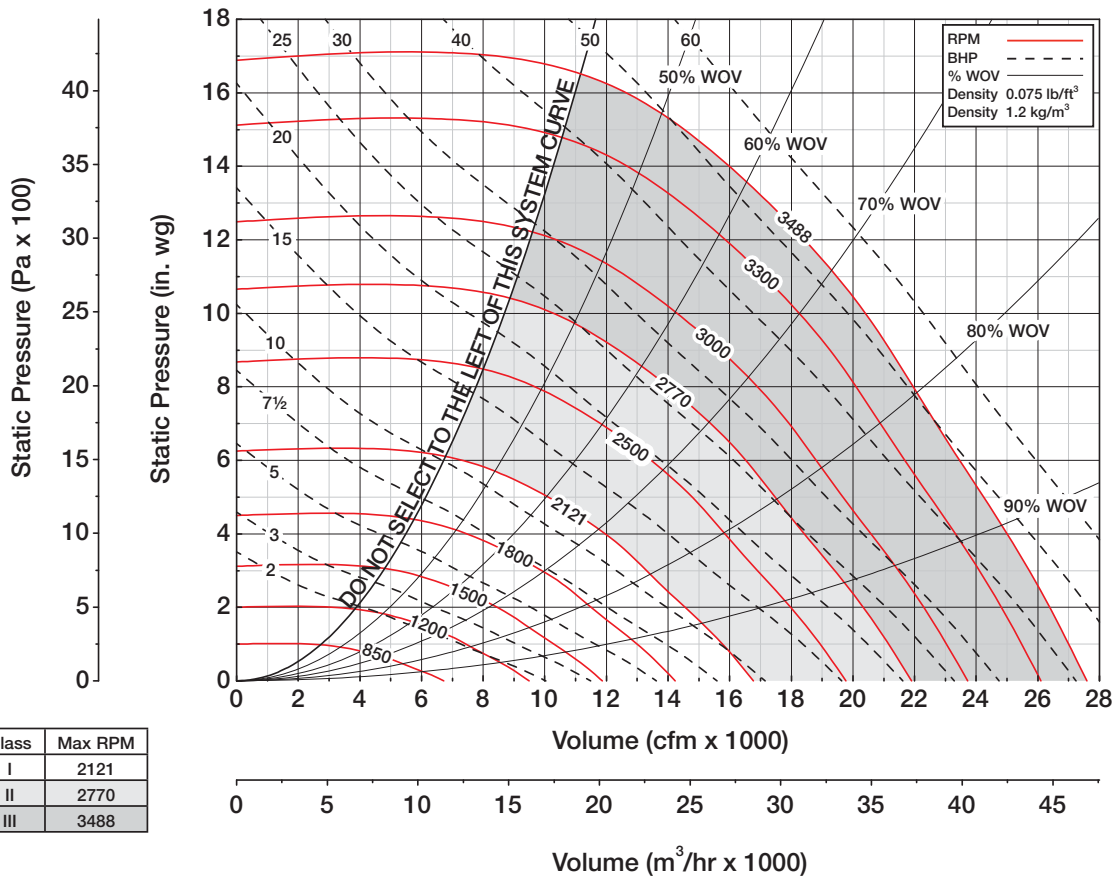
$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 5.90)$

Sound Power [dB Ref 10⁻¹² watts]

		Inlet Sound Power, L_{wi}									
RPM	%WOV	1	2	3	4	5	6	7	8	L_{wA}	
600	100	73	72	73	72	65	59	53	48	72	
	80	74	71	69	70	63	58	52	48	70	
	60	72	70	67	70	63	58	52	48	69	
	50	72	70	67	70	64	58	52	48	70	
	40	73	70	67	71	64	58	52	48	71	
900	100	77	83	80	78	72	66	58	54	79	
	80	75	80	77	76	69	65	56	53	76	
	60	74	75	73	75	69	65	57	53	75	
	50	77	77	73	75	69	65	58	54	75	
	40	79	78	73	75	70	65	58	54	76	
1300	100	82	86	87	87	81	77	69	65	87	
	80	79	83	84	85	78	74	68	63	85	
	60	80	83	83	84	78	74	69	65	84	
	50	83	85	83	84	78	74	69	65	84	
	40	87	88	84	84	78	74	69	65	85	
1900	100	89	90	95	93	88	83	78	74	94	
	80	86	87	91	89	85	79	73	70	90	
	60	88	86	88	87	83	78	75	73	88	
	50	90	91	89	87	83	78	76	74	89	
	40	93	97	92	88	83	79	76	74	90	
2700	100	96	98	99	103	97	93	88	85	103	
	80	96	95	96	102	95	89	83	80	101	
	60	92	93	93	96	91	88	85	83	97	
	50	94	95	94	95	91	88	86	84	97	
	40	101	103	100	99	92	89	86	84	99	
3865	100	102	107	107	109	109	103	98	94	112	
	80	102	106	104	107	107	99	94	89	110	
	60	98	103	102	103	102	97	94	92	106	
	50	100	105	104	102	102	97	95	93	106	
	40	107	112	111	106	104	98	95	93	109	

		Outlet Sound Power, L_{wo}									
RPM	%WOV	1	2	3	4	5	6	7	8	L_{wA}	
600	100	91	79	73	64	61	53	44	43	71	
	80	92	79	70	60	57	52	44	43	70	
	60	83	74	67	59	58	52	45	44	65	
	50	86	76	67	59	58	52	45	44	66	
	40	89	77	69	60	58	53	46	44	68	
900	100	90	86	79	75	71	64	55	52	78	
	80	84	84	77	69	65	60	51	50	74	
	60	83	79	73	67	64	60	54	51	71	
	50	91	81	73	66	64	60	54	52	72	
	40	94	84	74	67	65	60	55	52	74	
1300	100	97	90	88	84	81	74	66	60	86	
	80	92	87	85	80	75	68	61	57	82	
	60	90	85	82	76	71	66	62	60	79	
	50	99	94	84	77	72	67	63	60	82	
	40	102	95	85	77	73	68	64	61	84	
1900	100	105	96	94	92	89	84	78	72	94	
	80	98	92	92	87	85	79	72	67	90	
	60	97	89	90	84	82	76	72	70	87	
	50	102	95	89	84	81	76	73	71	88	
	40	107	103	93	86	83	78	73	71	92	
2700	100	112	104	99	102	99	94	89	84	103	
	80	105	99	97	102	97	90	83	78	102	
	60	104	97	94	97	93	87	83	79	98	
	50	106	100	95	96	92	86	84	80	97	
	40	114	109	102	95	93	88	84	81	100	
3865	100	118	117	109	108	109	104	99	94	112	
	80	112	111	105	107	108	101	94	88	111	
	60	110	109	103	103	103	98	92	89	107	
	50	112	112	105	102	102	97	92	90	106	
	40	121	120	113	105	102	98	94	90	110	

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{wA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	2121
II	2770
III	3488

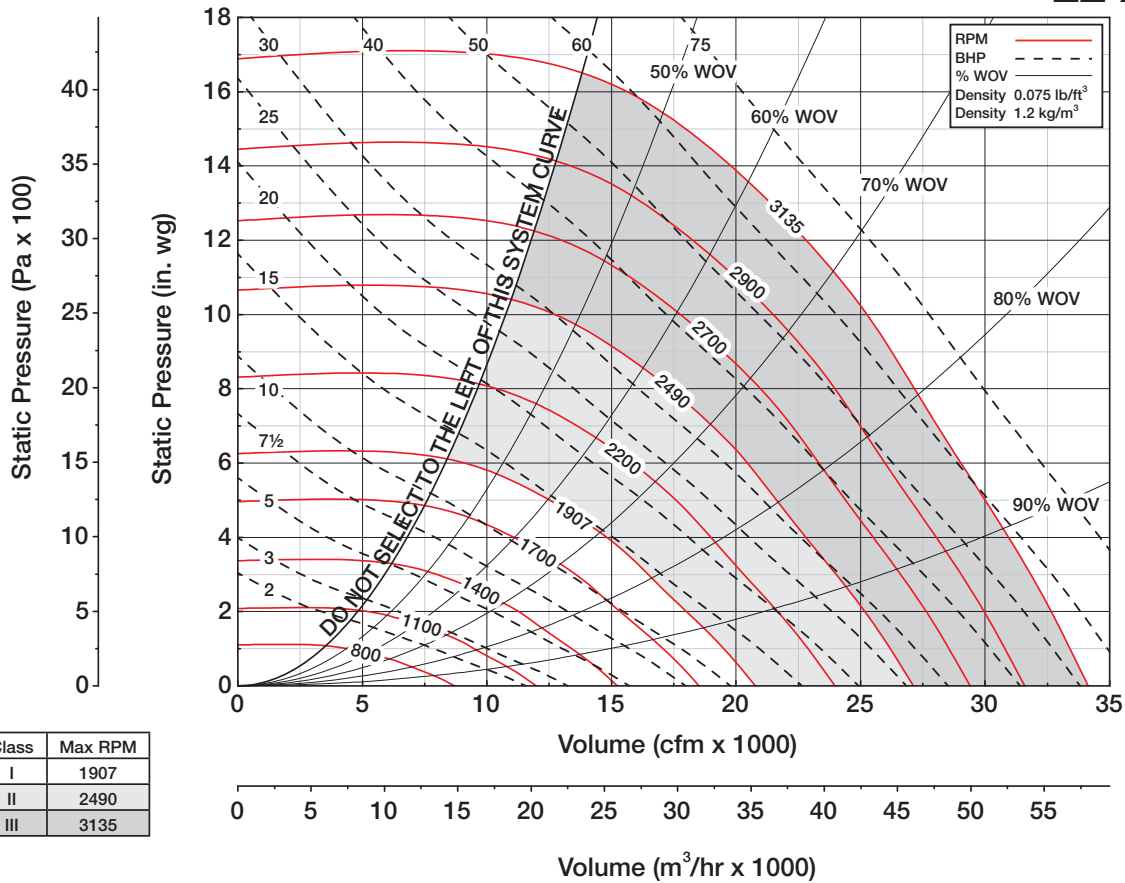
$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 7.91)$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}									
		1	2	3	4	5	6	7	8	L_{wA}	
800	100	80	83	81	79	77	73	68	63	82	
	80	81	81	79	78	75	73	69	63	81	
	60	79	80	77	77	74	73	69	64	80	
	50	79	79	77	77	74	73	69	64	80	
	40	81	80	77	77	74	73	69	64	80	
1100	100	83	86	88	83	80	77	71	66	86	
	80	81	86	86	81	78	75	71	66	84	
	60	80	84	84	79	77	74	71	66	82	
	50	84	84	83	78	77	74	71	66	82	
	40	88	85	83	78	77	74	71	66	82	
1500	100	90	89	95	90	85	82	75	69	92	
	80	87	86	93	87	82	78	72	67	89	
	60	89	87	89	84	80	77	71	66	87	
	50	93	92	91	85	80	77	71	67	88	
	40	94	96	92	86	81	77	71	67	89	
2000	100	96	93	100	96	91	89	83	76	98	
	80	93	90	99	93	88	85	78	73	95	
	60	94	91	95	90	86	82	76	72	92	
	50	98	97	97	92	86	82	76	72	94	
	40	99	100	99	93	87	83	76	72	95	
2600	100	105	99	101	106	99	96	91	85	106	
	80	103	96	99	104	97	93	86	80	103	
	60	104	98	98	101	94	90	84	80	101	
	50	107	105	105	101	94	92	85	80	102	
	40	108	106	105	101	94	92	85	80	102	
3488	100	110	108	106	111	109	104	100	94	113	
	80	108	106	104	109	106	101	95	89	110	
	60	109	107	104	106	104	98	93	88	108	
	50	112	113	111	106	104	99	94	88	109	
	40	113	114	112	106	104	99	94	88	109	

RPM	%WOV	Outlet Sound Power, L_{wo}									
		1	2	3	4	5	6	7	8	L_{wA}	
800	100	84	85	81	76	77	68	59	51	80	
	80	82	82	79	73	70	67	58	49	77	
	60	81	79	75	71	68	67	58	49	74	
	50	85	81	76	70	68	67	58	49	74	
	40	88	83	76	69	68	67	58	50	75	
1100	100	88	93	88	83	82	76	67	59	86	
	80	85	93	87	79	78	72	65	57	84	
	60	86	86	82	76	74	70	64	56	80	
	50	95	89	82	75	73	70	64	57	80	
	40	98	92	84	76	74	70	64	57	82	
1500	100	95	94	97	89	87	83	75	67	93	
	80	92	89	95	86	84	78	70	64	90	
	60	96	89	93	84	80	74	68	64	87	
	50	100	96	93	84	80	74	67	65	89	
	40	104	101	94	85	81	75	68	65	90	
2000	100	102	98	99	96	95	90	84	76	99	
	80	99	94	97	92	91	86	78	72	96	
	60	102	96	95	90	88	82	75	73	93	
	50	107	102	99	91	89	82	76	73	95	
	40	109	105	100	92	90	83	77	73	97	
2600	100	113	104	102	109	104	98	94	86	109	
	80	105	98	98	105	100	94	88	82	105	
	60	108	101	99	100	97	91	84	81	102	
	50	112	107	105	101	97	91	84	81	103	
	40	117	112	110	104	99	93	87	85	107	
3488	100	118	114	109	114	112	107	102	96	116	
	80	110	108	104	110	109	103	97	91	112	
	60	113	111	106	106	105	100	93	88	109	
	50	117	116	112	106	105	100	93	89	110	
	40	122	121	117	109	108	102	96	92	114	

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{wA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	1907
II	2490
III	3135

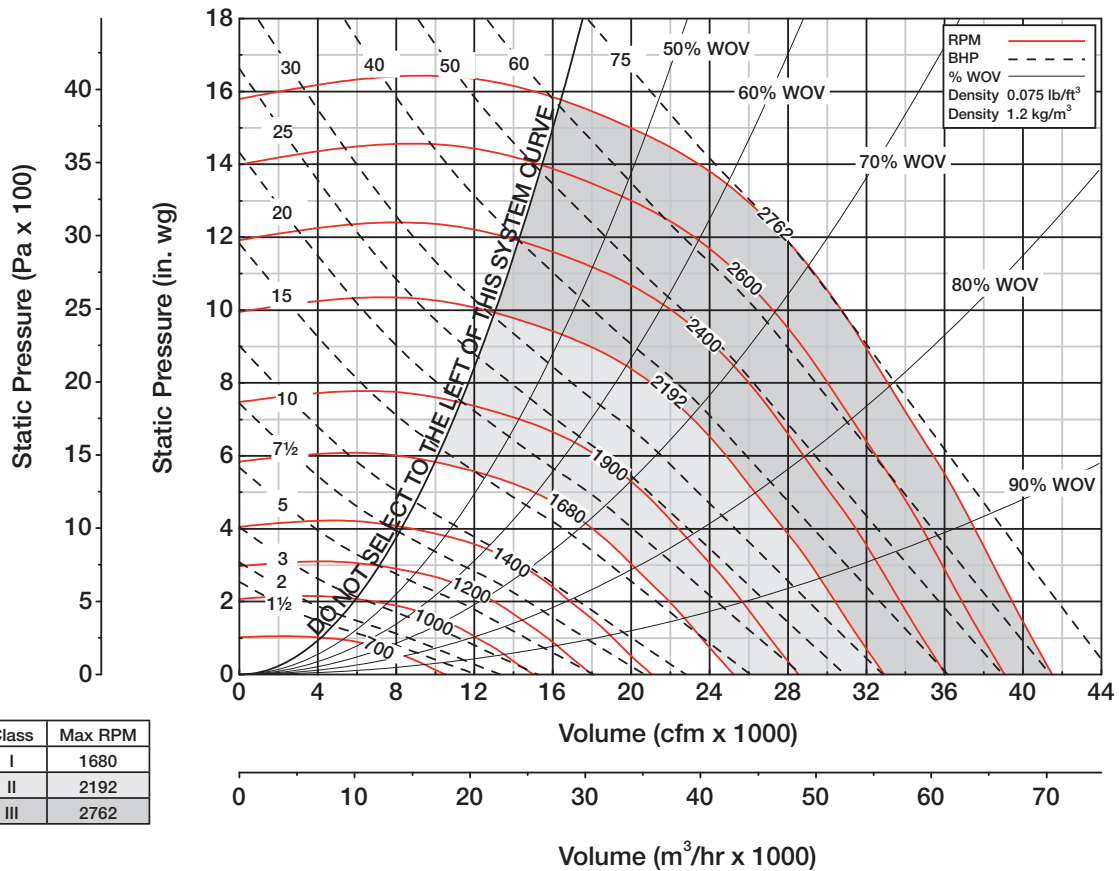
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 10.9)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L _{wi}								L _{wi} A
		1	2	3	4	5	6	7	8	
700	100	81	84	81	79	77	73	67	62	82
	80	81	82	79	78	75	72	68	63	80
	60	79	81	78	77	74	72	68	63	80
	50	79	80	77	76	74	72	68	63	80
	40	81	80	77	77	75	73	68	63	80
1000	100	84	88	88	84	81	77	71	66	86
	80	83	87	86	82	79	75	71	66	85
	60	82	85	84	80	77	74	71	66	83
	50	85	85	83	79	77	74	71	66	83
	40	89	86	84	79	77	74	71	66	83
1300	100	91	90	95	89	85	82	74	68	92
	80	88	87	94	86	82	78	72	67	89
	60	90	87	90	84	80	76	71	66	86
	50	93	91	91	84	80	76	71	67	87
	40	95	96	92	85	80	77	71	67	88
1700	100	95	94	101	95	91	88	81	75	97
	80	92	90	99	92	88	84	77	72	95
	60	93	91	96	89	85	81	75	71	92
	50	98	98	98	91	86	81	75	71	94
	40	99	100	99	92	86	82	75	71	95
2300	100	105	100	104	105	99	96	91	84	106
	80	103	97	102	104	96	92	86	80	103
	60	104	98	99	101	94	90	84	79	101
	50	107	106	99	101	94	92	84	80	101
	40	109	107	99	101	94	92	84	80	101
3135	100	111	108	108	112	108	104	100	94	113
	80	110	106	105	110	106	101	95	89	111
	60	110	107	105	108	104	99	93	88	109
	50	113	113	112	108	103	100	94	88	110
	40	115	114	112	108	103	100	94	88	110

RPM	%WOV	Outlet Sound Power, L _{wo}								L _{wo} A
		1	2	3	4	5	6	7	8	
700	100	84	86	80	77	75	67	57	50	80
	80	83	83	78	73	70	65	56	48	76
	60	81	80	75	70	68	65	56	48	74
	50	84	82	75	70	68	65	56	48	74
	40	88	84	75	70	68	66	57	48	75
1000	100	90	94	88	84	82	76	67	59	87
	80	87	94	87	80	78	72	65	57	85
	60	87	88	82	77	74	70	64	56	80
	50	95	90	83	76	74	70	64	57	81
	40	98	93	84	77	74	70	64	57	82
1300	100	96	94	99	89	87	82	73	66	94
	80	92	90	96	86	84	77	69	63	91
	60	96	89	94	82	80	73	67	64	88
	50	100	95	95	83	80	73	67	64	89
	40	104	101	95	83	81	74	67	65	90
1700	100	101	98	100	95	94	89	82	74	98
	80	98	94	98	91	90	84	77	71	95
	60	102	95	96	89	87	80	74	71	92
	50	106	101	99	90	87	80	74	72	94
	40	108	105	100	91	89	81	75	72	96
2300	100	112	104	107	109	103	98	93	86	109
	80	104	98	103	105	100	94	87	81	105
	60	108	101	99	101	97	90	84	81	101
	50	112	107	99	101	96	90	84	81	102
	40	117	112	102	104	99	92	87	86	105
3135	100	119	114	110	116	113	107	102	96	117
	80	111	107	105	111	109	103	97	91	113
	60	114	110	107	107	106	100	93	89	109
	50	118	116	113	107	105	100	93	89	111
	40	124	121	118	111	108	102	96	93	114

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi}, L_{wi}A and outlet L_{wo}, L_{wo}A sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	1680
II	2192
III	2762

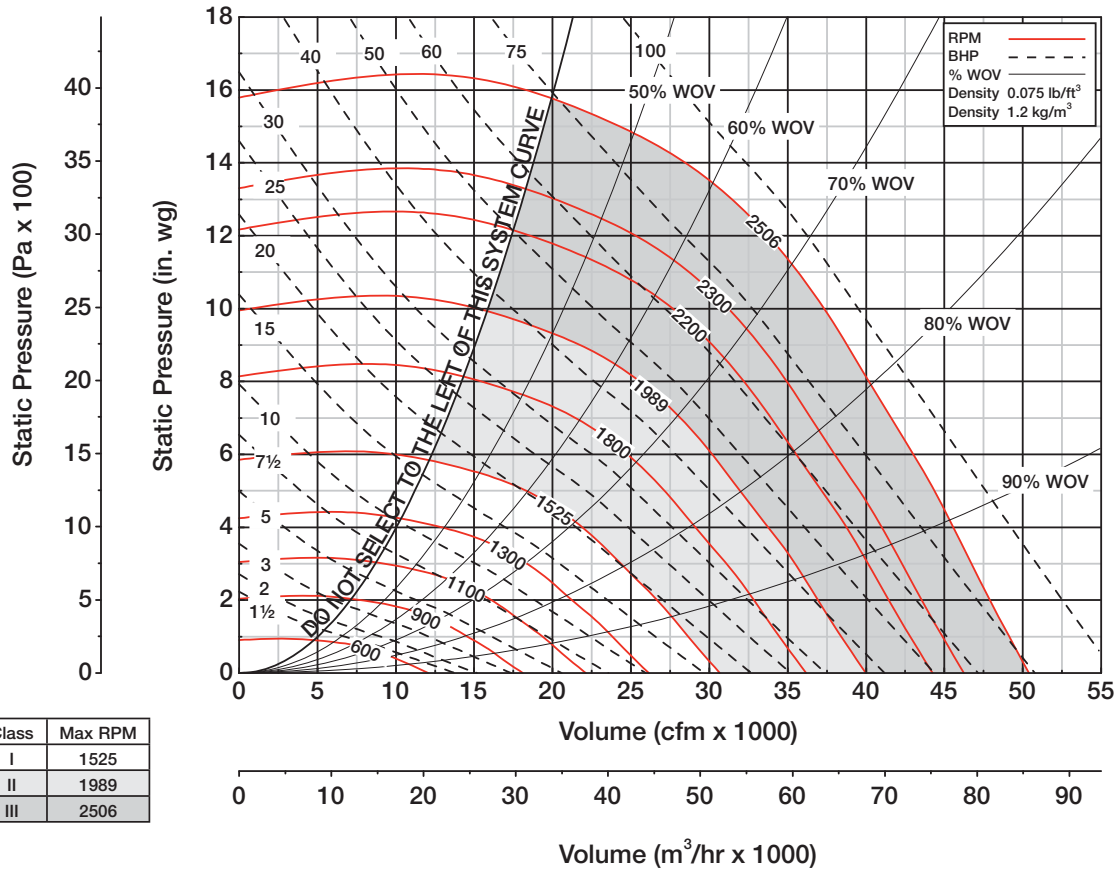
$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 15.0)$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L _{wi}								
		1	2	3	4	5	6	7	8	L _{wiA}
500	100	89	82	77	75	69	61	55	51	76
	80	87	80	75	74	68	60	54	50	75
	60	86	79	74	73	68	60	54	50	74
	50	86	79	74	73	68	60	54	50	74
	40	86	79	74	73	68	60	54	50	74
700	100	90	91	84	79	75	68	60	57	82
	80	86	86	81	76	72	65	58	55	79
	60	84	84	79	75	71	64	58	55	77
	50	84	84	79	75	71	64	58	56	77
	40	87	86	80	74	71	65	58	55	78
1000	100	89	91	90	86	84	79	72	66	89
	80	86	89	88	85	81	75	69	64	86
	60	86	89	86	83	79	74	69	65	85
	50	89	91	87	82	78	74	69	66	85
	40	93	91	87	82	79	74	70	66	85
1400	100	96	96	102	93	91	91	82	75	98
	80	93	93	97	90	87	86	77	73	94
	60	91	92	94	88	85	81	76	73	91
	50	95	93	92	87	85	81	77	74	90
	40	99	97	94	88	85	81	77	74	91
2000	100	106	101	107	103	99	101	96	88	107
	80	104	98	105	100	95	96	91	85	103
	60	102	96	102	97	93	91	87	83	100
	50	102	96	102	96	92	90	87	84	99
	40	109	106	105	98	92	90	87	84	101
2563	100	110	111	109	112	105	106	104	97	113
	80	108	108	106	109	102	100	99	92	109
	60	106	106	104	107	99	97	94	90	106
	50	107	107	104	106	98	96	93	90	106
	40	113	115	110	107	99	96	93	91	108

RPM	%WOV	Outlet Sound Power, L _{wo}								
		1	2	3	4	5	6	7	8	L _{woA}
500	100	82	81	76	70	66	57	47	44	73
	80	81	79	73	68	63	54	44	42	71
	60	79	77	72	67	63	54	46	43	70
	50	80	77	72	67	63	54	46	44	70
	40	80	77	72	67	64	54	47	44	70
700	100	95	94	82	77	74	67	58	53	83
	80	92	90	79	74	71	63	54	50	79
	60	92	90	78	72	70	62	54	51	78
	50	91	89	77	71	70	61	55	51	78
	40	90	89	77	71	70	61	55	52	78
1000	100	92	99	88	83	83	77	69	63	89
	80	88	96	85	80	78	72	65	60	85
	60	87	94	83	78	76	69	64	61	83
	50	94	96	84	77	76	69	65	62	84
	40	97	94	85	77	76	69	65	62	84
1400	100	100	100	95	92	91	90	81	74	96
	80	99	95	93	88	86	84	76	70	92
	60	94	93	92	86	83	78	73	70	89
	50	98	95	91	85	82	77	73	71	89
	40	106	103	93	86	84	78	74	72	92
2000	100	112	108	104	102	100	100	95	87	106
	80	105	101	100	98	96	94	89	82	101
	60	104	101	99	95	92	89	84	81	98
	50	102	100	98	94	91	87	84	81	97
	40	111	111	104	97	93	88	85	82	101
2563	100	116	115	110	108	106	105	103	95	112
	80	109	108	105	105	102	100	97	90	108
	60	108	108	105	102	99	96	91	87	104
	50	106	107	104	102	97	94	91	88	104
	40	116	117	112	105	100	96	91	88	108

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi}, L_{wiA} and outlet L_{wo}, L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



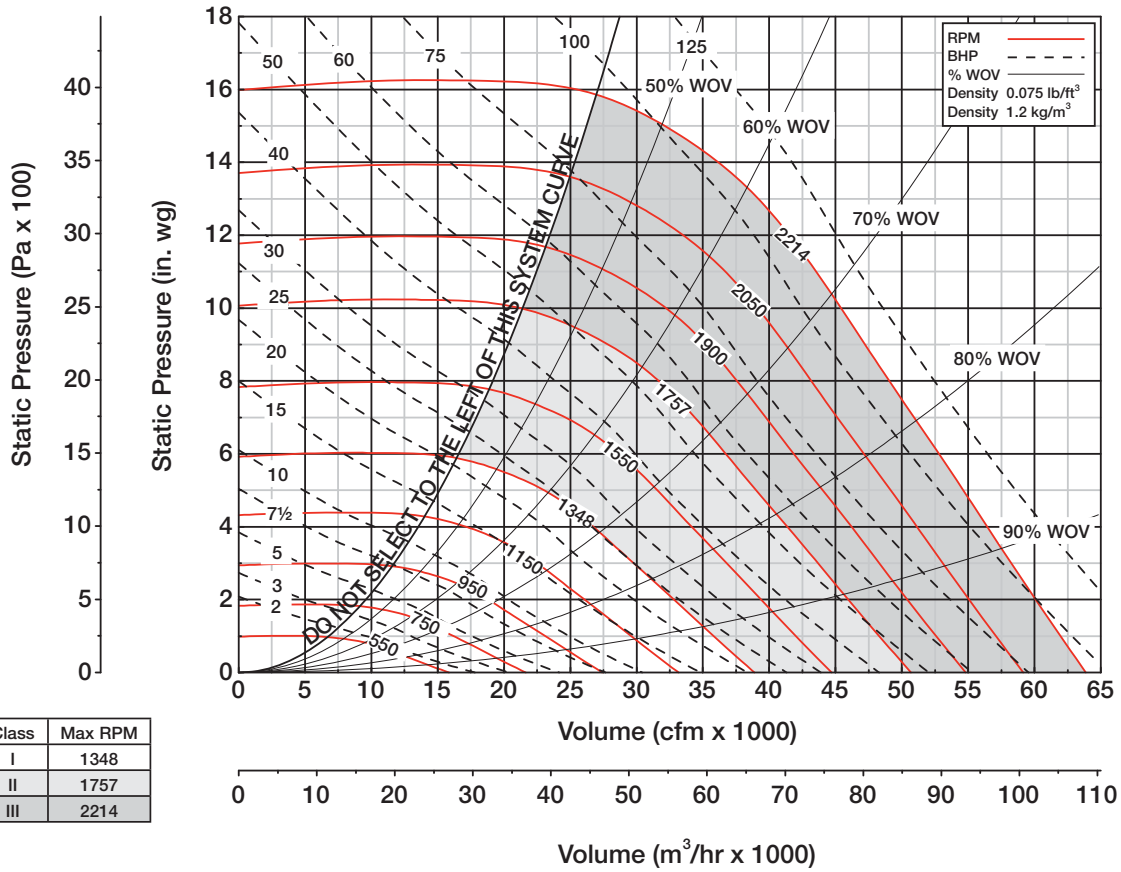
$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 20.1)$

Sound Power [dB Ref 10⁻¹² watts]

		Inlet Sound Power, L_{wi}									
RPM	%WOV	1	2	3	4	5	6	7	8	L_{wA}	
450	100	91	80	78	75	68	60	55	51	76	
	80	88	79	76	75	68	59	54	51	75	
	60	88	78	74	74	67	59	54	50	74	
	50	87	78	74	73	67	59	54	50	74	
	40	87	78	74	73	67	59	54	50	74	
600	100	91	87	83	77	74	65	58	56	80	
	80	87	81	80	75	71	63	56	55	77	
	60	85	79	79	74	70	62	56	55	76	
	50	84	79	78	73	71	62	56	55	76	
	40	88	81	79	72	71	62	56	54	76	
900	100	90	92	90	86	85	79	71	66	89	
	80	88	89	88	85	81	75	69	64	86	
	60	88	90	86	83	79	73	69	65	85	
	50	91	92	86	81	79	74	69	66	85	
	40	95	90	87	82	79	74	70	66	85	
1300	100	98	97	104	93	92	93	82	76	99	
	80	95	94	99	90	88	87	78	73	95	
	60	93	93	96	88	87	82	77	74	92	
	50	97	94	94	87	86	82	78	75	91	
	40	102	98	96	88	86	82	78	75	93	
1800	100	107	100	109	102	100	102	96	88	107	
	80	105	97	107	99	95	97	90	84	103	
	60	104	95	105	96	93	91	86	83	100	
	50	104	95	104	95	92	90	87	84	100	
	40	111	105	106	98	92	90	87	85	101	
2506	100	113	112	112	113	107	108	106	98	115	
	80	111	109	109	111	103	103	100	94	111	
	60	109	108	106	108	101	99	95	91	108	
	50	109	108	107	107	100	98	95	92	108	
	40	116	116	112	109	101	98	95	93	110	

		Outlet Sound Power, L_{wo}									
RPM	%WOV	1	2	3	4	5	6	7	8	L_{wA}	
450	100	83	81	75	69	66	56	47	45	72	
	80	83	79	73	67	64	52	44	43	70	
	60	80	77	72	67	64	52	46	44	69	
	50	81	77	72	67	64	52	46	44	70	
	40	81	77	72	67	64	53	47	45	70	
600	100	96	91	79	76	74	64	56	52	80	
	80	92	87	77	72	71	60	52	49	77	
	60	92	86	75	70	70	58	53	50	76	
	50	91	86	74	70	70	58	53	51	75	
	40	91	86	74	70	70	58	54	51	75	
900	100	93	101	86	83	83	77	69	62	89	
	80	89	98	84	80	79	71	64	60	85	
	60	88	96	82	78	76	68	64	61	83	
	50	95	97	83	77	76	69	65	62	84	
	40	98	95	84	77	76	68	65	63	83	
1300	100	102	101	97	93	92	91	82	74	98	
	80	101	96	95	89	87	85	76	71	93	
	60	96	94	94	86	84	79	74	71	90	
	50	100	96	93	85	83	78	74	72	90	
	40	108	103	94	86	85	79	75	73	93	
1800	100	113	107	105	102	100	101	94	87	107	
	80	106	101	101	99	96	94	89	82	102	
	60	105	101	99	95	93	89	84	81	98	
	50	103	100	99	94	91	87	84	81	97	
	40	112	111	103	97	94	88	85	82	101	
2506	100	118	117	112	110	108	107	104	97	114	
	80	111	110	107	107	104	102	98	92	110	
	60	100	110	106	104	100	98	93	89	106	
	50	109	108	106	103	99	96	92	89	105	
	40	118	119	114	106	102	98	93	90	110	

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{wA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	1348
II	1757
III	2214

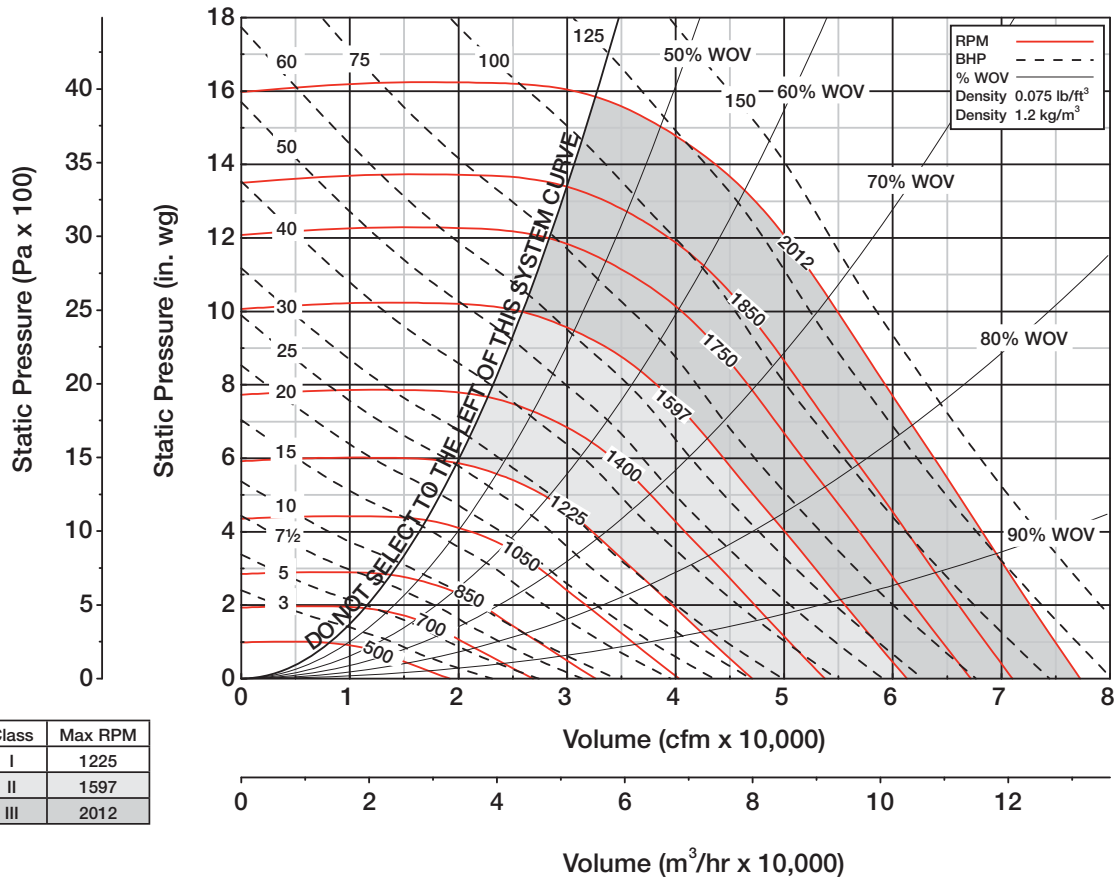
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 28.8)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}									
		1	2	3	4	5	6	7	8	L_{wiA}	
400	100	92	78	78	75	68	59	55	51	76	
	80	90	77	76	75	67	59	54	51	75	
	60	89	76	75	74	67	58	54	50	74	
	50	89	76	75	74	67	58	54	50	74	
	40	89	76	74	74	67	58	54	50	74	
600	100	95	91	86	80	77	69	61	59	83	
	80	90	85	84	78	74	66	59	58	80	
	60	89	83	82	77	74	65	59	58	79	
	50	88	82	82	76	74	65	60	58	79	
	40	92	84	82	76	74	65	60	58	79	
800	100	91	93	90	87	85	78	71	66	89	
	80	89	90	88	85	81	74	69	64	86	
	60	89	91	87	83	79	73	69	65	85	
	50	92	93	86	81	79	73	69	66	85	
	40	95	91	86	82	79	74	70	66	85	
1100	100	97	99	101	92	92	90	80	74	98	
	80	94	95	97	89	88	84	76	72	93	
	60	93	93	94	87	85	81	76	73	91	
	50	95	93	92	86	85	80	77	74	90	
	40	100	96	94	87	85	80	77	74	91	
1600	100	108	101	110	102	100	103	95	87	108	
	80	105	98	108	99	96	97	90	84	104	
	60	104	95	106	96	93	91	86	84	101	
	50	104	96	105	95	92	90	87	84	100	
	40	111	105	106	97	92	90	87	85	101	
2214	100	115	112	114	113	108	109	106	98	115	
	80	113	109	112	110	104	104	100	94	112	
	60	111	107	109	107	101	99	96	92	108	
	50	111	107	109	106	100	98	95	93	108	
	40	118	116	114	108	101	98	96	93	110	

RPM	%WOV	Outlet Sound Power, L_{wo}									
		1	2	3	4	5	6	7	8	L_{woA}	
400	100	84	81	75	69	66	54	46	45	72	
	80	84	79	73	67	64	51	43	44	70	
	60	82	77	72	66	64	51	45	44	69	
	50	83	77	72	67	64	51	46	45	70	
	40	83	77	72	67	65	51	47	45	70	
600	100	99	94	83	79	77	68	59	55	83	
	80	95	90	80	75	74	63	55	52	80	
	60	95	89	78	73	73	62	56	53	79	
	50	94	89	77	73	73	61	56	54	78	
	40	94	89	77	73	73	61	57	54	78	
800	100	95	101	86	84	83	76	68	62	89	
	80	91	98	83	80	79	71	64	60	85	
	60	90	96	81	78	76	68	64	61	83	
	50	96	97	82	77	76	68	65	63	84	
	40	98	95	83	77	76	68	65	63	83	
1100	100	101	99	96	92	92	89	79	72	96	
	80	99	95	93	88	86	83	74	69	92	
	60	95	93	92	85	83	77	73	70	89	
	50	99	94	91	84	82	77	73	71	88	
	40	106	99	92	85	83	77	74	72	90	
1600	100	113	107	105	102	101	101	94	86	107	
	80	106	101	102	99	96	94	88	81	102	
	60	106	101	100	95	93	89	84	81	98	
	50	104	100	99	94	92	87	84	82	97	
	40	113	111	103	96	94	88	85	82	101	
2214	100	120	117	113	110	108	109	104	97	115	
	80	112	110	109	107	105	103	98	91	110	
	60	112	110	107	104	101	98	93	90	107	
	50	110	109	107	103	100	96	93	90	106	
	40	119	119	113	106	102	98	94	91	110	

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wiA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



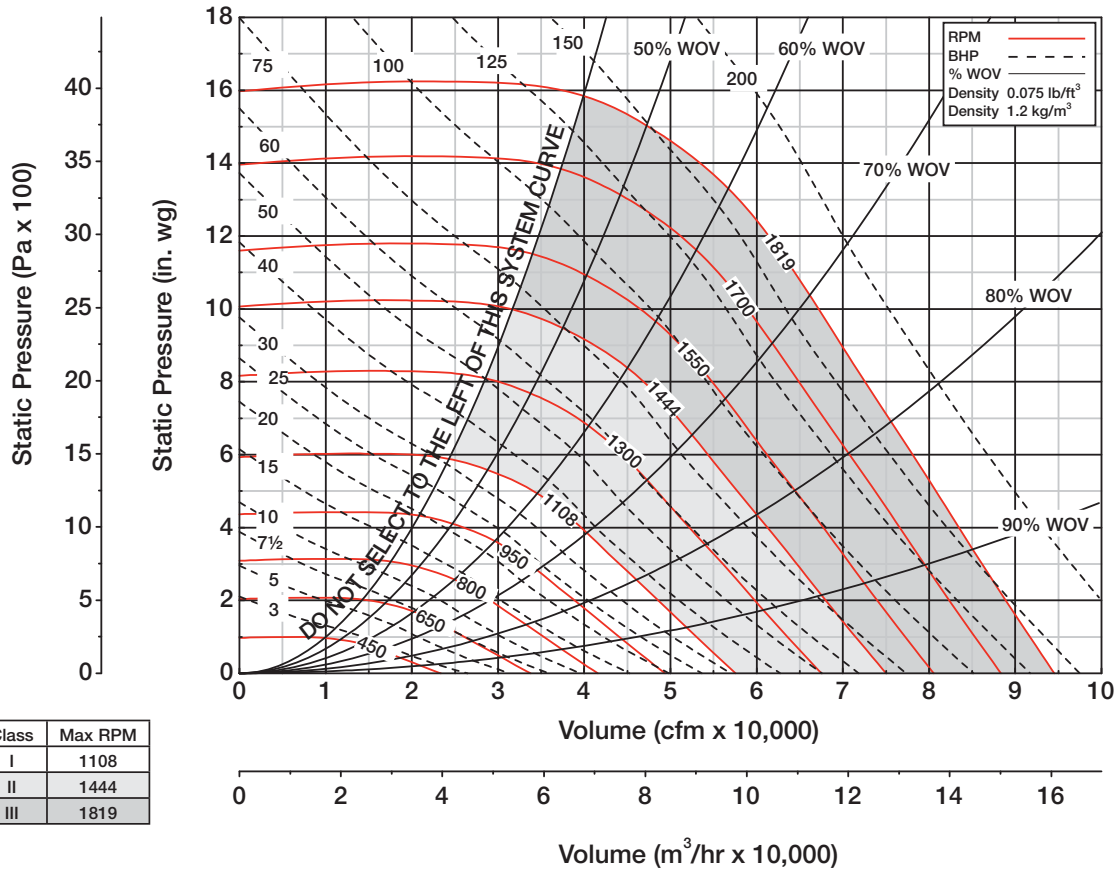
$\% \text{WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 38.4)$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
400	100	96	81	81	78	71	62	58	54	79
	80	94	80	79	78	70	62	57	53	78
	60	93	79	78	77	70	61	57	53	77
	50	92	79	77	77	70	61	57	53	77
	40	92	79	77	77	70	61	57	53	77
600	100	98	94	89	83	80	71	64	62	86
	80	94	88	87	81	77	69	62	61	83
	60	92	86	85	80	77	68	62	61	82
	50	92	85	84	79	77	68	63	61	82
	40	95	87	85	79	77	68	62	61	82
800	100	95	96	93	89	87	81	74	69	92
	80	92	93	91	88	83	77	72	67	89
	60	93	94	89	86	82	76	72	68	88
	50	95	96	89	84	82	76	72	69	88
	40	99	94	89	85	82	77	73	69	88
1100	100	100	102	104	95	95	93	83	77	101
	80	98	98	100	92	90	87	79	75	96
	60	96	96	97	90	88	83	79	75	94
	50	99	96	95	89	87	83	80	76	93
	40	104	99	97	90	88	83	80	77	94
1500	100	109	104	111	103	102	103	96	88	109
	80	106	100	109	100	97	98	91	85	105
	60	105	98	106	97	94	92	88	85	102
	50	105	99	105	96	94	91	88	86	101
	40	112	107	107	98	94	91	89	86	102
2012	100	116	111	117	112	108	110	105	98	116
	80	114	108	114	109	104	105	100	94	112
	60	113	106	112	106	102	100	96	92	109
	50	113	107	111	105	101	99	96	93	108
	40	120	116	115	108	102	99	96	94	111

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
400	100	87	84	78	72	69	57	49	48	75
	80	87	81	76	70	67	54	46	47	73
	60	84	80	75	69	67	54	48	47	72
	50	85	80	75	70	67	54	49	48	73
	40	85	80	75	70	68	54	50	48	73
600	100	102	97	85	82	80	71	62	58	86
	80	98	93	83	78	77	66	58	55	83
	60	98	92	81	76	76	65	59	56	82
	50	97	92	80	76	76	64	59	57	81
	40	97	92	80	76	76	64	60	57	81
800	100	97	104	89	87	86	79	71	65	92
	80	94	101	86	83	81	74	67	63	88
	60	93	99	84	81	79	71	67	64	86
	50	99	100	85	80	79	71	68	65	87
	40	101	97	86	80	79	71	68	66	86
1100	100	104	102	99	95	94	92	82	75	99
	80	102	97	96	91	89	86	77	72	94
	60	98	96	95	88	85	80	76	73	92
	50	102	97	94	87	85	80	76	74	91
	40	109	102	95	88	86	80	77	75	93
1500	100	114	108	106	104	103	102	94	87	108
	80	107	103	103	100	98	95	89	82	103
	60	107	102	101	97	94	90	85	82	99
	50	105	101	100	95	93	89	86	83	98
	40	115	112	103	98	95	89	86	83	102
2012	100	121	117	113	111	109	109	104	96	115
	80	114	110	110	108	105	103	98	91	111
	60	113	110	108	104	102	98	93	90	107
	50	111	109	107	104	100	97	93	90	106
	40	121	120	113	106	103	98	94	91	110

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	1108
II	1444
III	1819

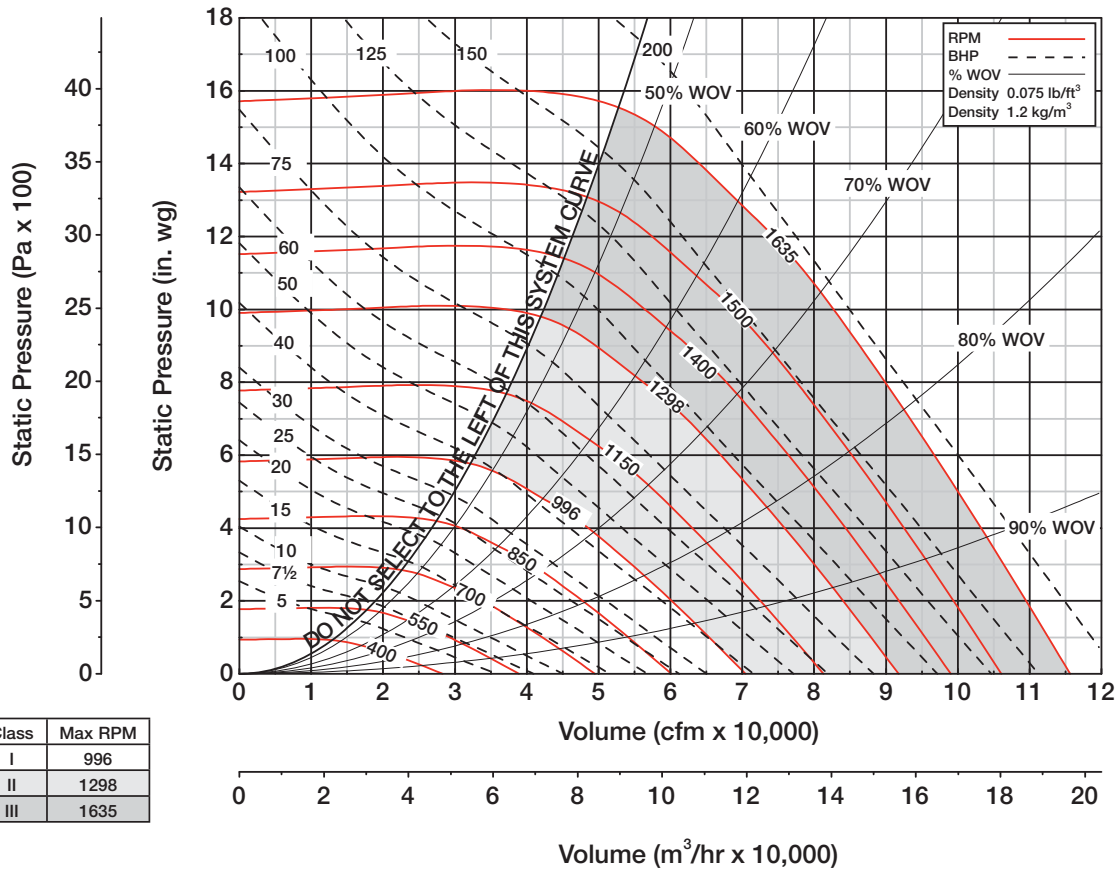
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 52.0)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
350	100	83	84	83	80	76	71	65	60	82
	80	84	85	83	79	76	71	65	60	81
	60	84	85	82	79	76	71	65	60	81
	50	85	85	83	80	76	71	65	60	82
	40	88	87	84	80	76	71	65	60	82
500	100	87	87	84	82	79	74	65	60	84
	80	85	85	83	82	79	74	65	58	84
	60	83	84	82	81	79	74	65	59	83
	50	82	84	82	81	79	74	65	59	83
	40	83	84	82	81	79	74	65	60	83
700	100	98	99	92	86	84	79	72	68	90
	80	97	97	89	85	83	78	71	66	89
	60	93	94	87	84	83	78	71	67	88
	50	93	94	87	84	83	78	72	68	88
	40	92	94	87	84	84	79	72	68	88
900	100	96	103	97	91	90	84	79	76	95
	80	91	102	94	87	87	81	77	73	92
	60	89	98	90	84	87	81	78	75	91
	50	89	96	89	84	87	81	79	75	90
	40	89	99	89	83	87	81	79	76	91
1300	100	102	112	110	101	99	95	90	86	106
	80	98	110	108	97	95	90	86	84	103
	60	96	108	105	94	92	88	86	84	100
	50	96	106	103	93	91	88	87	85	99
	40	97	105	102	92	91	89	87	86	98
1819	100	107	115	124	112	106	104	99	95	117
	80	104	112	122	109	102	100	95	92	115
	60	102	109	119	105	99	98	94	93	112
	50	102	109	117	104	98	98	94	94	110
	40	103	109	115	103	98	98	95	94	109

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
350	100	83	81	79	75	71	63	54	47	77
	80	82	81	78	75	71	63	55	46	77
	60	81	80	78	75	71	63	55	46	76
	50	81	79	77	75	71	63	55	47	76
	40	80	79	77	74	71	63	55	47	76
500	100	95	90	82	79	76	70	62	56	82
	80	94	89	81	78	75	70	61	54	81
	60	92	86	79	77	75	69	61	54	80
	50	91	85	78	77	75	69	61	54	79
	40	92	86	78	76	74	69	61	54	79
700	100	107	104	91	86	83	78	72	66	92
	80	103	101	89	84	81	76	70	63	89
	60	99	98	85	82	79	75	69	63	87
	50	97	97	85	82	79	75	69	64	86
	40	97	97	85	82	79	75	69	64	86
900	100	103	106	97	93	90	84	78	73	96
	80	97	102	92	88	86	80	75	71	92
	60	96	100	89	85	84	77	74	71	90
	50	95	100	88	84	84	77	74	71	89
	40	95	101	87	83	84	77	74	71	90
1300	100	109	112	109	103	100	95	90	84	106
	80	105	111	108	101	97	91	86	82	104
	60	102	109	104	96	92	87	84	81	100
	50	102	109	104	95	91	87	84	82	100
	40	101	107	102	94	91	87	85	82	99
1819	100	114	118	121	112	109	105	100	94	116
	80	110	115	121	110	106	101	96	91	115
	60	108	112	119	105	101	97	93	90	112
	50	107	112	119	104	100	96	92	91	112
	40	107	111	117	103	100	96	92	91	110

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	996
II	1298
III	1635

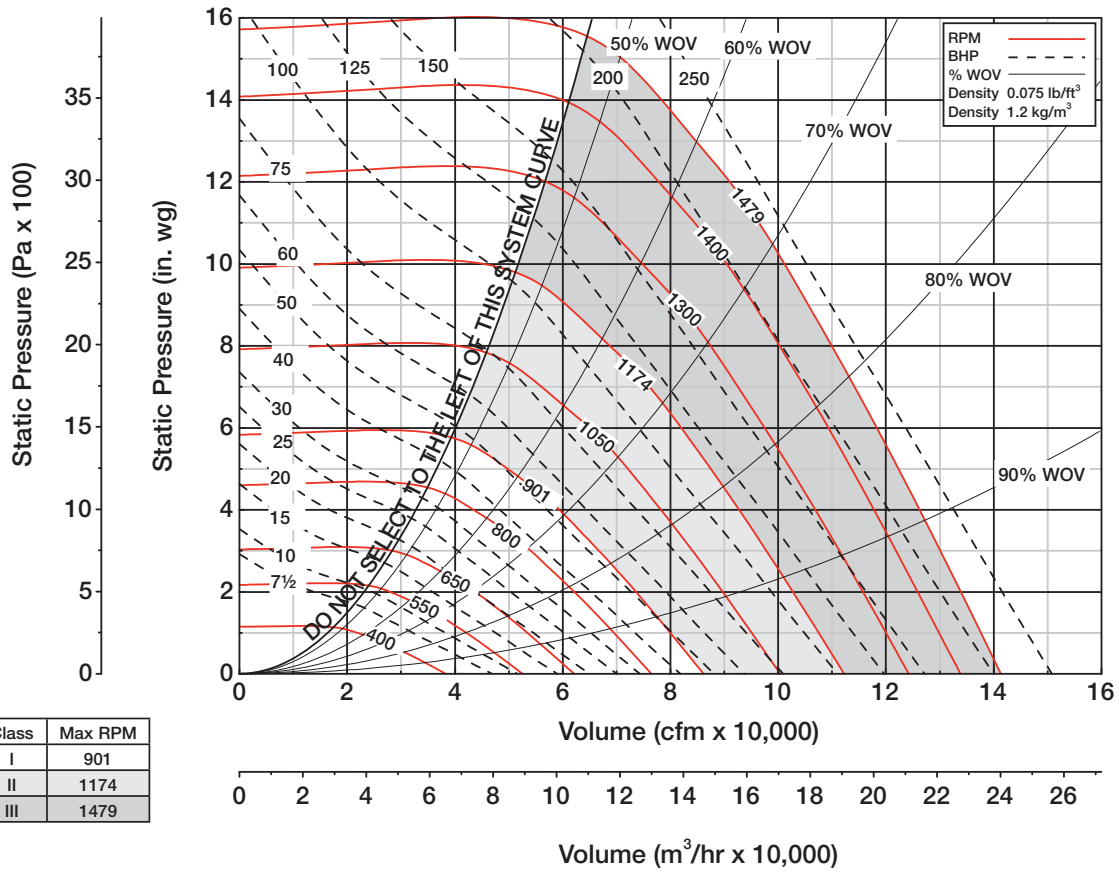
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 70.7)$$

Sound Power [dB Ref 10⁻¹² watts]

		Inlet Sound Power, L_{wi}									
RPM	%WOV	1	2	3	4	5	6	7	8	L_{wA}	
300	100	84	83	82	78	75	69	63	58	80	
	80	85	84	82	78	75	69	63	58	80	
	60	85	84	81	78	75	69	63	58	80	
	50	85	84	82	78	75	69	63	58	80	
	40	89	85	83	78	75	69	63	58	81	
400	100	87	83	81	79	76	70	60	57	81	
	80	85	82	80	80	76	70	59	55	81	
	60	83	81	80	79	76	70	60	55	80	
	50	82	81	79	79	76	70	60	56	81	
	40	82	81	80	79	76	70	60	56	81	
600	100	99	95	90	85	83	77	70	67	88	
	80	98	93	87	83	83	76	69	65	87	
	60	94	90	85	83	83	76	69	66	86	
	50	94	91	85	83	83	76	70	66	87	
	40	93	91	85	84	83	77	71	67	87	
800	100	97	104	96	91	90	83	79	76	95	
	80	93	102	93	87	87	81	77	73	92	
	60	91	98	89	85	87	80	78	74	91	
	50	90	97	88	84	87	81	79	75	90	
	40	91	100	88	84	87	81	79	76	91	
1200	100	104	115	110	101	100	95	90	87	106	
	80	100	113	107	98	96	91	87	84	103	
	60	98	110	104	94	93	89	88	85	101	
	50	98	108	102	93	93	89	88	86	100	
	40	99	107	101	92	93	89	89	87	99	
1635	100	109	117	124	111	107	104	99	95	117	
	80	106	114	122	108	103	100	95	92	115	
	60	104	112	120	105	100	98	95	93	112	
	50	104	111	118	103	99	98	95	94	111	
	40	105	111	116	102	99	98	95	94	110	

		Outlet Sound Power, L_{wo}									
RPM	%WOV	1	2	3	4	5	6	7	8	L_{woA}	
300	100	83	80	78	74	70	60	53	44	76	
	80	83	80	78	74	70	61	53	44	76	
	60	81	79	77	74	70	61	53	44	75	
	50	81	78	77	73	70	61	53	45	75	
	40	81	78	76	73	70	61	53	45	75	
400	100	94	86	78	77	73	66	57	52	79	
	80	93	84	77	75	72	65	56	51	78	
	60	91	81	76	75	72	65	56	51	77	
	50	90	80	75	75	72	65	56	51	76	
	40	91	80	74	75	72	65	56	50	76	
600	100	107	99	89	85	82	76	70	65	89	
	80	103	98	86	83	79	75	68	62	87	
	60	99	94	82	82	78	74	67	62	85	
	50	98	94	82	82	78	74	67	62	85	
	40	98	95	82	82	78	74	67	63	85	
800	100	104	106	96	93	90	83	78	73	96	
	80	98	103	91	88	86	79	75	71	92	
	60	97	100	88	85	84	77	74	71	90	
	50	96	100	87	84	84	77	74	71	89	
	40	96	101	86	83	84	77	74	71	89	
1200	100	110	114	108	104	101	96	90	85	107	
	80	106	113	107	102	97	92	87	83	104	
	60	103	112	103	97	93	88	85	82	101	
	50	103	111	102	96	92	87	86	83	100	
	40	103	110	101	95	92	87	86	83	99	
1635	100	116	119	122	112	109	105	99	94	116	
	80	112	116	121	110	106	101	96	91	115	
	60	109	114	120	105	101	97	93	90	113	
	50	109	114	120	104	100	96	93	91	112	
	40	108	113	118	103	100	96	93	91	111	

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	901
II	1174
III	1479

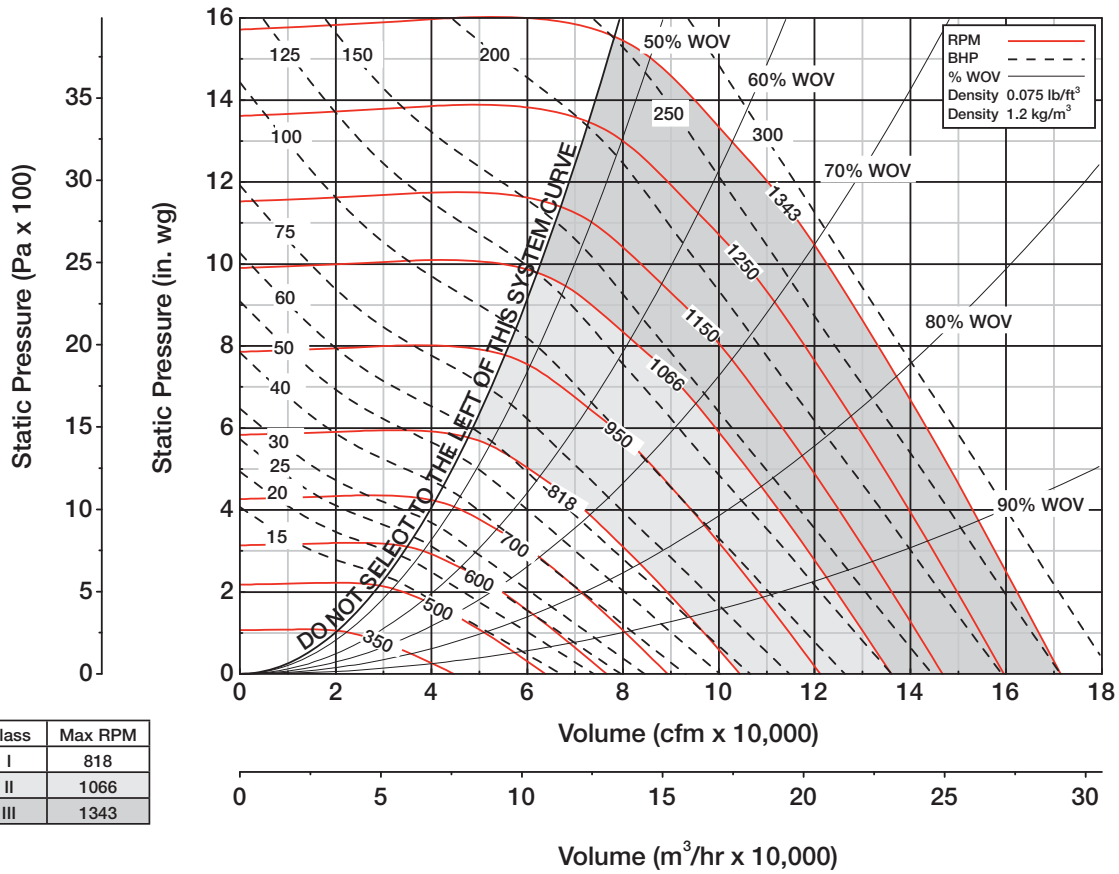
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 95.6)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
300	100	87	86	85	81	78	72	66	61	83
	80	88	87	85	81	78	72	66	61	83
	60	88	87	84	81	78	72	66	61	83
	50	89	87	85	81	78	72	66	61	83
	40	92	89	86	81	78	72	67	62	84
400	100	90	86	85	82	79	73	63	60	84
	80	88	85	83	83	79	73	62	58	84
	60	86	84	83	82	79	73	63	58	83
	50	85	84	82	82	79	73	63	59	84
	40	86	84	83	83	79	73	63	59	84
600	100	102	99	93	88	86	80	73	70	91
	80	102	96	90	86	86	79	72	68	90
	60	97	94	88	86	86	79	72	69	90
	50	97	94	88	86	86	79	73	69	90
	40	97	94	88	87	86	80	74	70	90
800	100	101	107	99	94	93	86	82	79	98
	80	97	106	96	90	90	84	80	76	96
	60	95	101	92	88	90	83	81	77	94
	50	94	100	91	87	90	84	82	78	94
	40	95	103	91	87	90	84	82	79	94
1100	100	106	117	109	101	101	96	91	88	107
	80	102	116	106	98	97	91	88	85	104
	60	100	113	103	94	94	89	89	86	102
	50	100	111	101	93	94	90	89	87	100
	40	101	109	100	93	94	90	90	87	100
1479	100	111	119	123	111	107	105	99	95	116
	80	107	117	121	108	104	100	96	93	114
	60	105	115	118	104	101	98	95	94	111
	50	105	113	116	103	100	98	96	94	110
	40	106	113	114	102	100	98	96	95	109

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
300	100	86	83	81	77	73	63	56	47	79
	80	86	83	81	77	73	64	56	47	79
	60	84	82	80	77	73	64	56	47	78
	50	84	81	80	76	73	64	56	48	78
	40	84	81	79	76	73	64	56	48	78
400	100	97	89	81	80	76	69	60	55	82
	80	96	87	80	79	75	69	59	54	81
	60	94	84	79	78	75	68	59	54	80
	50	93	83	78	78	75	68	59	54	79
	40	94	83	77	78	75	68	59	53	79
600	100	110	102	92	88	85	79	73	68	92
	80	106	101	89	86	82	78	71	65	90
	60	102	97	85	85	81	77	70	65	88
	50	101	97	85	85	81	77	70	65	88
	40	101	98	85	85	81	77	70	66	88
800	100	107	109	99	96	93	86	81	76	99
	80	101	106	94	91	89	82	78	74	95
	60	100	103	91	88	87	80	77	74	93
	50	99	103	90	87	87	80	77	74	92
	40	100	104	89	86	87	80	77	74	93
1100	100	112	116	108	105	101	96	90	85	107
	80	108	115	106	102	98	92	88	84	105
	60	105	114	101	98	94	88	86	83	102
	50	105	114	100	96	93	88	87	83	101
	40	104	112	99	96	93	88	87	84	100
1479	100	117	120	120	113	109	105	99	94	116
	80	113	118	120	110	106	101	96	92	114
	60	110	116	117	106	102	97	93	91	111
	50	110	116	117	104	101	96	94	91	111
	40	110	115	115	104	100	96	94	91	109

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	818
II	1066
III	1343

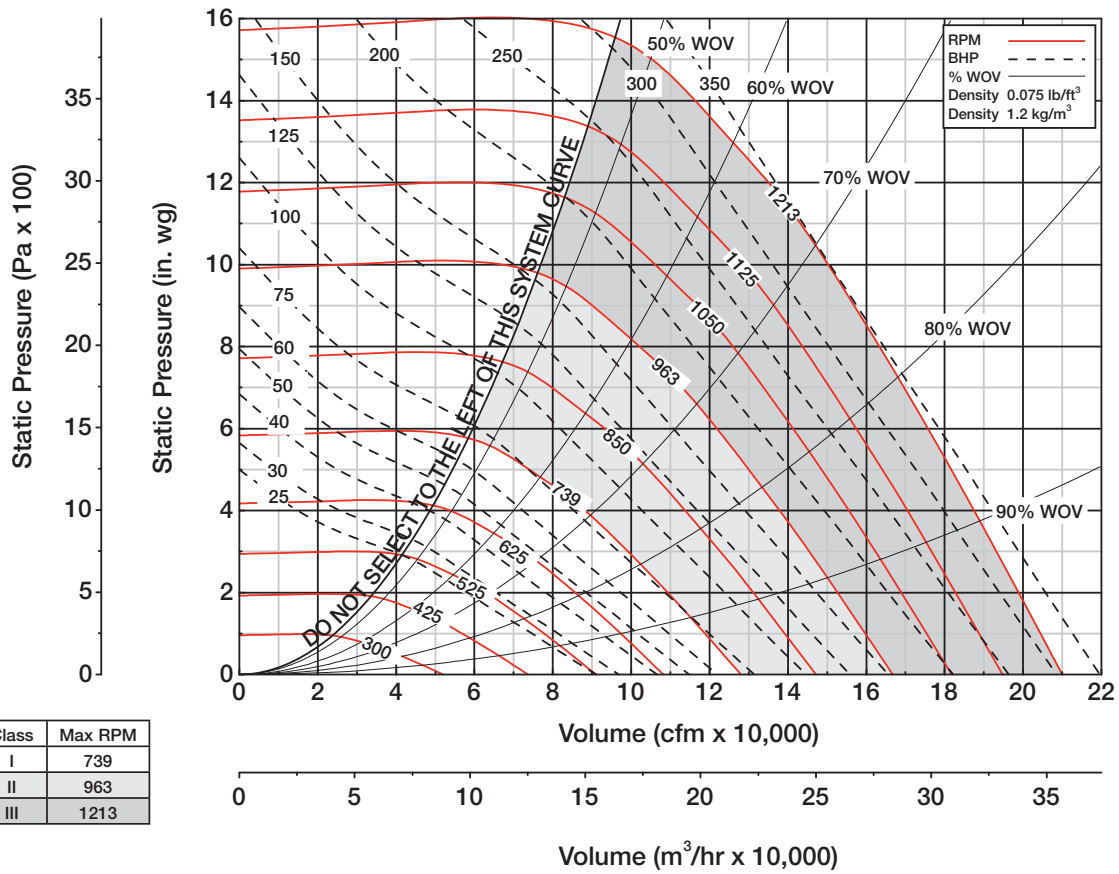
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 128)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
250	100	86	85	84	79	76	69	64	59	81
	80	87	85	83	79	76	69	64	59	81
	60	88	85	82	79	76	69	64	59	81
	50	88	85	84	79	76	70	64	59	81
	40	91	86	84	79	76	70	64	59	82
350	100	90	86	84	82	78	71	63	59	83
	80	88	85	83	82	78	71	62	58	83
	60	86	84	83	82	78	71	62	58	83
	50	85	84	82	82	78	71	62	58	83
	40	86	84	83	82	78	71	63	59	83
500	100	102	96	91	86	84	77	71	68	89
	80	102	93	88	85	83	76	70	66	88
	60	98	91	86	85	84	76	70	67	87
	50	97	91	86	85	84	77	71	67	88
	40	97	91	87	86	84	77	72	68	88
700	100	102	105	98	94	92	85	81	78	97
	80	99	104	95	90	89	83	79	75	94
	60	96	100	91	88	89	83	80	77	93
	50	95	98	90	88	89	83	81	78	93
	40	96	100	90	88	89	83	81	78	93
1000	100	108	119	109	102	101	96	91	88	108
	80	105	117	106	98	97	91	89	86	105
	60	103	114	102	95	95	90	89	87	102
	50	102	112	101	94	94	90	90	88	101
	40	103	111	100	94	94	91	90	88	101
1343	100	112	122	121	111	108	105	100	96	116
	80	109	120	119	107	104	100	96	93	113
	60	107	117	116	104	102	98	96	94	110
	50	107	116	114	103	101	98	97	95	109
	40	108	115	113	102	101	98	97	95	109

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
250	100	85	81	79	75	70	59	53	44	76
	80	85	81	79	75	70	60	53	44	76
	60	83	80	78	75	70	60	53	44	76
	50	83	79	78	74	71	60	53	45	76
	40	83	79	78	74	70	60	53	45	76
350	100	95	87	81	79	75	67	59	54	81
	80	95	85	80	78	74	67	58	53	80
	60	93	83	79	78	74	67	58	53	79
	50	91	82	78	77	74	67	58	53	79
	40	92	82	77	77	73	66	58	52	79
500	100	110	98	90	87	82	77	70	66	90
	80	106	96	87	84	80	75	68	62	88
	60	102	93	84	83	79	74	67	62	85
	50	101	93	83	83	79	74	68	63	85
	40	100	93	83	83	79	74	68	64	85
700	100	108	107	98	96	92	85	80	75	98
	80	102	103	93	91	88	82	77	73	94
	60	101	101	90	88	86	79	77	73	91
	50	100	101	89	87	86	79	77	73	91
	40	101	101	89	87	86	80	77	74	91
1000	100	113	117	108	105	102	97	91	86	108
	80	110	117	106	103	98	92	88	84	106
	60	107	115	102	98	94	89	86	83	103
	50	107	115	101	97	93	89	87	84	102
	40	106	113	100	96	93	89	87	84	101
1343	100	118	122	119	113	110	105	99	94	116
	80	114	120	118	111	106	101	96	92	114
	60	111	119	115	106	102	97	94	91	110
	50	111	118	115	105	101	97	94	92	110
	40	111	117	113	104	101	96	94	92	109

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	739
II	963
III	1213

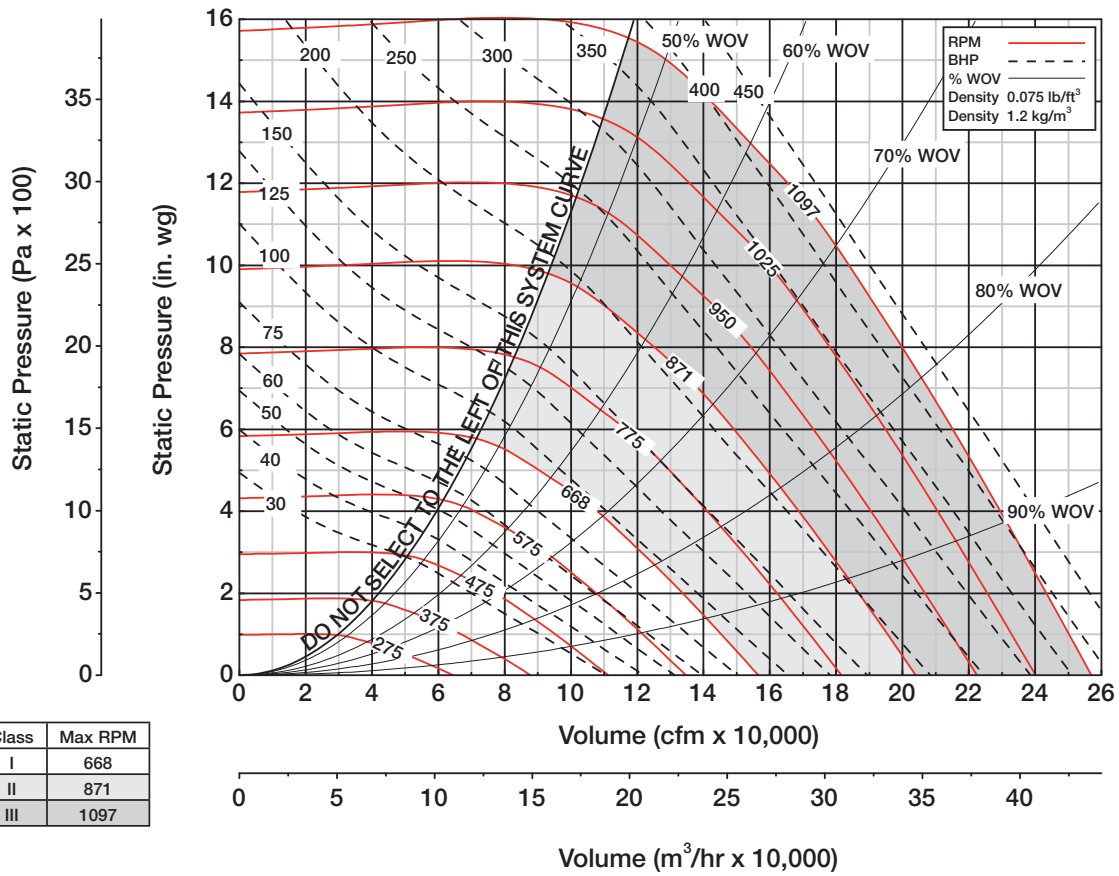
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 173)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{Wi}								
		1	2	3	4	5	6	7	8	L_{WiA}
250	100	90	88	87	83	79	73	67	62	85
	80	91	88	86	82	79	73	67	62	84
	60	91	89	85	82	79	73	67	62	84
	50	91	88	87	82	79	73	67	62	85
	40	94	90	87	82	79	73	67	62	85
350	100	93	89	87	85	81	74	66	62	86
	80	91	88	86	85	81	74	65	61	86
	60	89	87	86	85	81	74	65	61	86
	50	89	87	85	85	81	74	65	62	86
	40	89	87	86	85	81	74	66	62	86
450	100	104	96	91	87	84	77	72	68	89
	80	103	93	88	86	83	76	70	66	88
	60	99	91	87	86	83	76	71	67	88
	50	99	91	87	86	83	77	71	68	88
	40	98	91	87	86	84	77	72	69	88
650	100	104	106	99	95	92	86	82	79	98
	80	101	104	96	92	90	84	80	76	95
	60	99	100	92	90	89	84	81	78	94
	50	98	99	91	90	89	85	82	79	94
	40	99	101	91	90	90	85	82	79	94
900	100	111	120	108	103	101	96	92	88	108
	80	108	119	105	99	97	92	89	86	106
	60	106	116	102	96	95	91	90	87	103
	50	105	114	100	95	94	91	90	88	102
	40	105	112	99	95	94	92	91	88	101
1213	100	114	124	119	111	109	105	100	96	116
	80	110	122	117	107	105	100	97	94	113
	60	108	120	114	104	103	98	97	95	110
	50	108	118	112	102	102	98	97	95	109
	40	109	117	111	102	102	99	98	96	109

RPM	%WOV	Outlet Sound Power, L_{Wo}								
		1	2	3	4	5	6	7	8	L_{WoA}
250	100	88	84	82	78	73	63	56	47	79
	80	88	84	82	78	74	63	56	47	80
	60	86	83	81	78	74	63	56	47	79
	50	86	82	81	78	74	63	56	48	79
	40	86	82	81	77	74	63	56	48	79
350	100	99	90	84	83	78	71	62	57	84
	80	98	88	83	81	77	70	61	56	83
	60	96	86	82	81	77	70	61	56	82
	50	94	85	81	81	77	70	61	56	82
	40	95	85	80	80	77	70	61	55	82
450	100	111	98	90	87	82	76	71	66	90
	80	107	95	87	85	80	75	68	62	88
	60	103	92	85	83	79	74	67	62	86
	50	102	92	84	83	79	74	68	63	85
	40	102	92	84	83	79	74	68	64	85
650	100	109	107	99	97	92	86	81	76	99
	80	104	103	95	92	89	83	78	74	95
	60	103	101	92	90	86	80	78	74	92
	50	102	101	90	89	86	81	78	74	92
	40	103	101	90	88	86	81	78	75	92
900	100	114	118	108	106	102	96	91	86	108
	80	112	118	107	103	98	93	88	84	106
	60	109	116	102	98	94	89	87	83	103
	50	109	116	101	97	93	89	87	84	103
	40	108	114	100	96	93	89	88	84	102
1213	100	119	123	118	114	110	105	99	94	116
	80	115	122	116	111	107	101	96	92	114
	60	113	121	113	106	102	97	95	91	110
	50	112	121	112	105	101	97	95	92	110
	40	112	119	110	104	101	97	95	92	109

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{Wi} , L_{WiA} and outlet L_{Wo} , L_{WoA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	668
II	871
III	1097

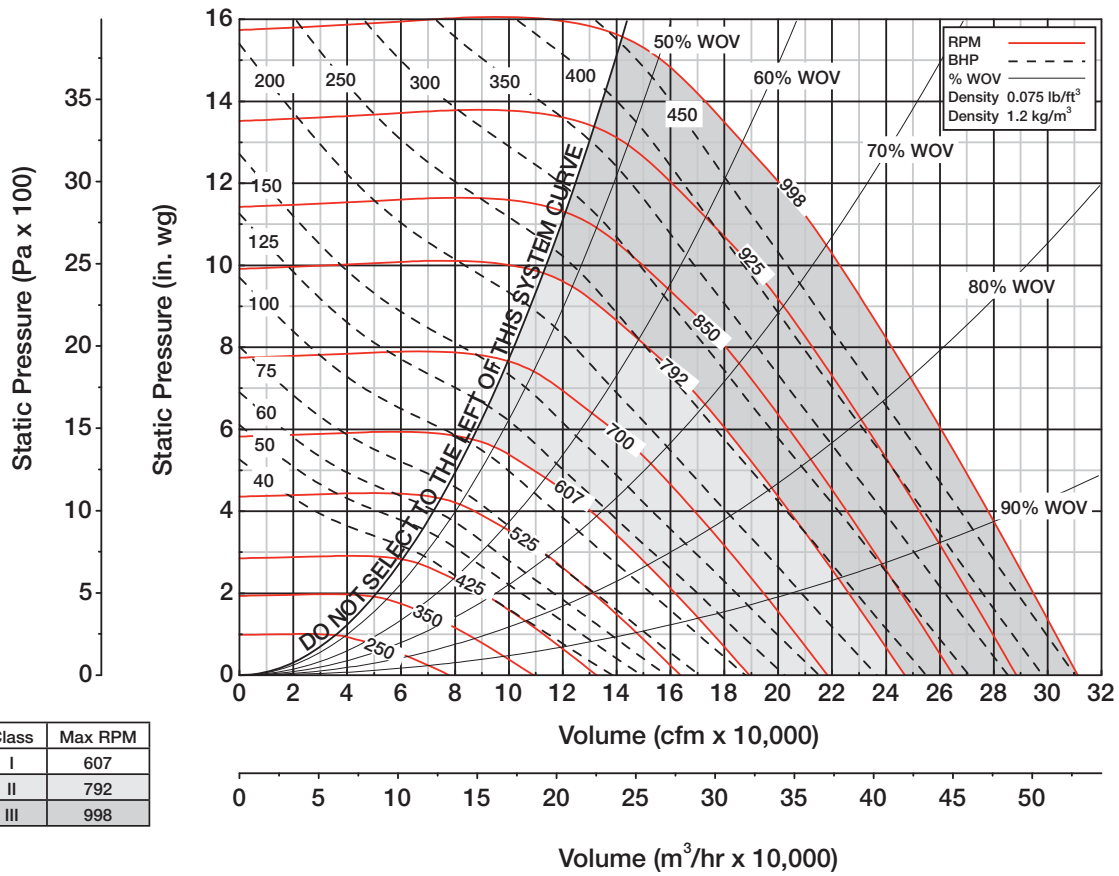
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 234)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
200	100	87	86	83	80	75	69	63	58	81
	80	88	86	83	80	75	69	64	58	81
	60	88	86	83	80	75	69	64	59	81
	50	88	86	83	80	75	69	64	58	81
	40	91	87	84	80	75	69	64	59	82
300	100	92	89	86	84	79	72	65	61	85
	80	90	88	86	84	79	71	63	59	85
	60	88	87	86	84	79	72	64	59	85
	50	88	86	85	84	79	72	64	60	85
	40	88	87	85	84	80	72	65	61	85
400	100	104	96	90	87	83	76	72	68	89
	80	103	93	88	86	83	75	70	66	88
	60	99	91	87	86	83	76	70	67	88
	50	99	91	87	86	83	76	71	68	88
	40	99	91	88	87	83	76	72	69	88
550	100	105	104	97	94	90	85	81	78	96
	80	103	101	93	92	87	83	79	75	94
	60	100	98	90	90	87	83	80	77	93
	50	99	96	90	90	87	84	81	78	93
	40	101	97	89	90	87	84	81	78	93
800	100	113	120	108	103	101	96	91	88	108
	80	111	118	104	99	96	92	89	86	105
	60	108	116	101	97	94	91	90	87	103
	50	107	114	99	96	94	92	90	88	102
	40	107	112	99	95	94	92	91	89	101
1097	100	116	127	118	110	110	105	100	97	116
	80	112	125	115	107	106	100	97	94	113
	60	110	122	112	103	103	98	98	95	111
	50	110	120	110	102	103	99	98	96	110
	40	111	119	109	102	103	99	99	96	109

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
200	100	85	82	79	75	68	59	51	43	76
	80	85	82	79	75	68	59	51	42	76
	60	83	81	78	75	68	59	51	42	76
	50	83	80	78	75	68	59	52	43	76
	40	83	80	78	75	68	59	52	43	75
300	100	96	88	84	81	76	68	61	56	83
	80	95	87	82	80	75	68	60	54	81
	60	93	85	81	80	75	67	60	55	81
	50	92	84	81	80	75	67	60	55	80
	40	92	84	80	79	75	67	59	54	80
400	100	110	96	90	87	82	76	70	66	90
	80	107	94	87	84	80	74	68	62	87
	60	103	91	85	83	79	73	67	62	85
	50	102	90	85	83	79	73	68	63	85
	40	102	91	85	83	79	73	68	64	85
550	100	109	104	98	95	90	84	79	75	97
	80	105	100	93	92	86	81	77	72	93
	60	103	97	90	89	84	79	76	73	91
	50	103	97	89	88	84	80	76	73	90
	40	104	96	88	88	84	80	77	74	90
800	100	116	118	109	106	101	96	90	85	108
	80	113	118	106	103	97	92	88	84	106
	60	111	116	102	98	93	89	87	83	103
	50	111	116	101	97	93	89	87	84	103
	40	110	114	100	96	93	90	88	84	101
1097	100	121	125	117	114	110	105	99	94	116
	80	117	124	115	111	107	101	97	93	114
	60	114	123	110	107	103	97	95	92	111
	50	114	123	109	105	102	97	96	92	110
	40	114	121	108	105	102	97	96	93	109

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



Class	Max RPM
I	607
II	792
III	998

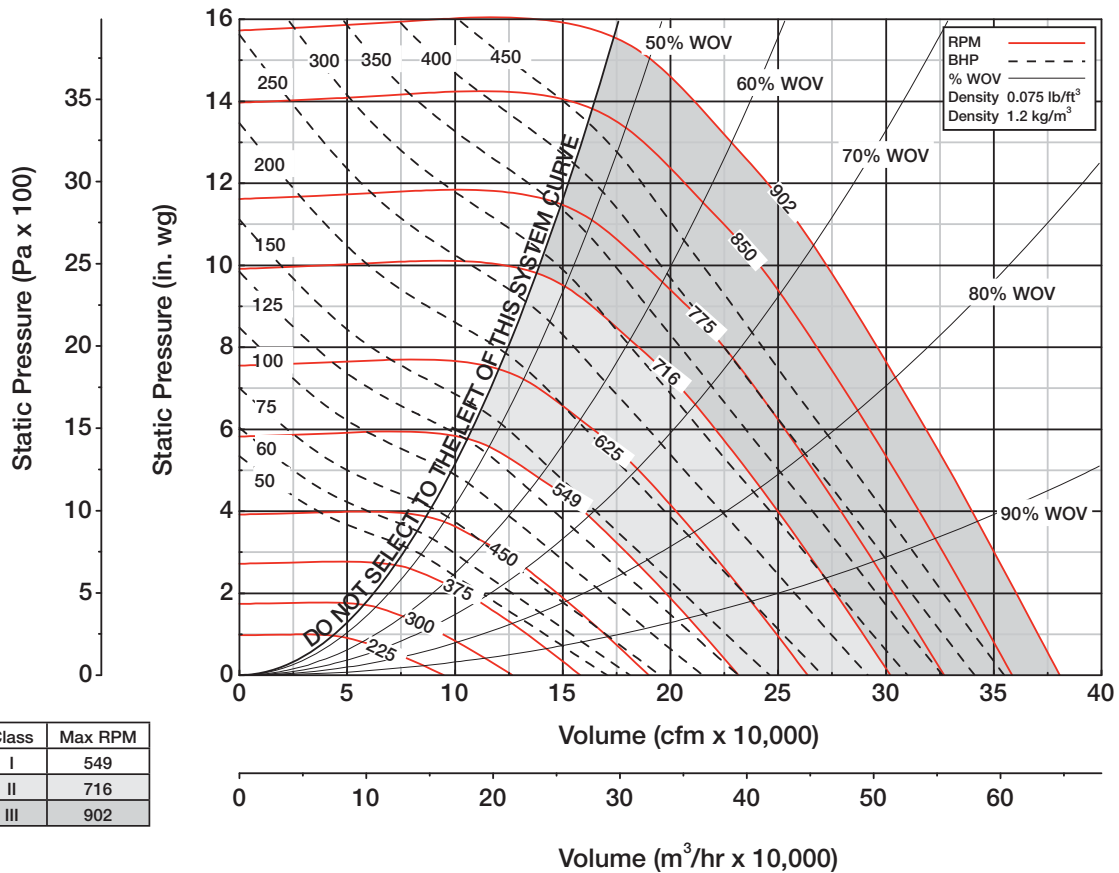
$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 312)$$

Sound Power [dB Ref 10⁻¹² watts]

RPM	%WOV	Inlet Sound Power, L_{wi}								
		1	2	3	4	5	6	7	8	L_{wA}
200	100	90	89	86	83	78	72	66	61	84
	80	91	89	86	83	78	72	66	61	84
	60	91	89	85	82	78	72	67	62	84
	50	92	89	86	83	78	72	66	61	84
	40	94	90	86	83	78	72	67	62	84
300	100	95	92	89	87	82	75	68	64	88
	80	93	90	89	87	82	74	66	62	88
	60	91	90	88	87	82	75	67	62	87
	50	91	89	88	87	82	75	67	63	88
	40	91	90	88	87	82	75	67	64	88
400	100	107	99	93	90	86	79	74	71	92
	80	106	96	91	89	85	78	73	69	91
	60	102	94	90	89	85	78	73	70	91
	50	102	94	90	89	85	79	74	71	91
	40	102	94	91	90	86	79	75	72	91
500	100	107	104	97	95	90	85	81	78	97
	80	105	101	93	92	87	83	79	75	94
	60	102	97	90	92	87	83	80	77	93
	50	101	96	90	91	87	84	81	78	93
	40	103	96	89	92	87	84	82	79	93
700	100	116	117	106	103	100	95	91	88	107
	80	113	115	103	99	95	91	88	85	103
	60	111	112	99	97	93	91	89	87	101
	50	109	110	98	96	93	92	90	88	100
	40	109	109	97	96	93	92	90	88	100
998	100	118	128	118	111	110	105	100	97	117
	80	115	126	115	107	106	100	98	95	114
	60	113	124	111	104	104	99	98	96	112
	50	112	122	110	103	103	99	99	97	110
	40	113	120	109	103	103	100	99	97	110

RPM	%WOV	Outlet Sound Power, L_{wo}								
		1	2	3	4	5	6	7	8	L_{woA}
200	100	88	85	82	78	71	62	54	46	79
	80	88	85	82	78	71	62	54	45	79
	60	86	84	81	78	71	62	54	45	79
	50	86	83	81	78	71	62	55	46	78
	40	86	83	81	77	71	62	55	46	78
300	100	99	91	86	84	79	71	64	59	85
	80	98	90	85	83	78	70	63	57	84
	60	96	88	84	83	78	70	62	58	84
	50	95	86	84	82	78	70	63	58	83
	40	95	86	83	82	78	70	62	57	83
400	100	113	99	93	90	85	79	73	69	93
	80	110	97	90	87	83	77	70	65	90
	60	106	93	88	86	82	76	70	65	88
	50	105	93	88	86	82	76	71	66	88
	40	105	94	88	86	82	76	71	67	88
500	100	110	103	99	96	90	84	79	75	97
	80	107	99	94	92	86	81	77	73	93
	60	105	96	91	90	84	80	77	73	91
	50	105	95	89	89	84	80	77	73	91
	40	105	95	89	89	84	80	77	74	91
700	100	116	115	108	105	100	95	89	84	107
	80	115	114	106	102	96	91	87	83	104
	60	113	111	101	97	92	89	86	83	101
	50	113	111	100	96	92	89	87	84	100
	40	111	109	99	96	92	89	87	84	100
998	100	122	126	117	114	111	106	100	95	117
	80	119	126	115	112	107	101	97	93	115
	60	116	124	111	107	103	98	95	92	112
	50	116	124	110	106	102	98	96	93	111
	40	115	122	109	105	102	98	96	93	110

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{woA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.



$$\% \text{ WOV} = (\text{CFM} \times 100) / (\text{RPM} \times 422)$$

Sound Power [dB Ref 10⁻¹² watts]

		Inlet Sound Power, L_{wi}									
RPM	%WOV	1	2	3	4	5	6	7	8	L_{wA}	
180	100	91	90	86	83	78	72	66	61	84	
	80	91	90	86	83	78	72	66	61	84	
	60	92	89	86	83	78	72	67	62	84	
	50	92	90	86	83	78	72	66	61	84	
	40	94	91	86	83	78	72	67	62	85	
250	100	93	90	88	85	80	71	66	62	86	
	80	91	89	88	85	80	71	64	60	86	
	60	90	88	87	85	80	71	65	60	86	
	50	90	88	87	85	80	71	65	61	86	
	40	90	88	87	85	80	71	66	62	86	
350	100	105	98	92	90	85	78	74	71	91	
	80	103	95	91	89	84	77	72	68	90	
	60	100	93	90	89	84	77	73	69	90	
	50	100	93	90	89	84	78	74	70	90	
	40	100	93	90	90	85	78	74	71	91	
500	100	110	107	100	98	93	88	85	81	100	
	80	109	104	96	96	90	86	82	78	97	
	60	105	100	94	95	90	86	83	80	96	
	50	104	99	93	95	90	87	84	81	96	
	40	106	99	92	95	90	87	85	82	96	
650	100	118	117	107	105	101	96	92	89	107	
	80	116	114	103	101	96	92	90	87	104	
	60	114	111	100	98	94	93	90	88	102	
	50	112	109	99	97	94	93	91	89	101	
	40	111	108	98	97	94	93	92	89	101	
902	100	121	130	117	112	110	105	101	97	118	
	80	118	128	114	108	106	101	98	95	115	
	60	115	125	111	105	104	100	99	96	112	
	50	115	123	109	104	103	100	99	97	111	
	40	115	121	109	104	103	101	100	98	111	

		Outlet Sound Power, L_{wo}									
RPM	%WOV	1	2	3	4	5	6	7	8	L_{wA}	
180	100	88	85	82	78	70	61	54	45	79	
	80	88	85	82	78	70	62	53	44	79	
	60	87	84	82	78	70	62	53	44	79	
	50	86	84	81	78	70	62	54	46	79	
	40	86	84	81	78	70	62	54	46	78	
250	100	96	89	85	82	76	68	62	57	83	
	80	95	87	84	81	76	67	60	55	82	
	60	92	85	83	81	75	67	60	55	82	
	50	91	84	83	81	75	67	60	56	81	
	40	91	84	82	81	75	67	60	55	81	
350	100	110	97	92	89	84	78	72	68	91	
	80	107	95	90	87	82	76	70	64	89	
	60	104	91	88	85	81	75	69	64	87	
	50	103	91	88	85	81	75	70	65	87	
	40	103	91	88	85	81	75	70	66	87	
500	100	113	107	102	99	93	87	82	78	100	
	80	110	102	97	95	89	84	80	76	96	
	60	108	99	94	93	87	83	80	76	94	
	50	108	98	92	92	87	83	80	76	94	
	40	108	98	92	92	87	83	80	77	94	
650	100	118	115	109	106	101	96	90	85	108	
	80	117	114	107	103	97	92	88	84	105	
	60	115	110	102	98	93	90	87	84	101	
	50	115	110	101	97	93	91	88	85	101	
	40	114	108	100	97	93	91	88	85	100	
902	100	124	127	118	115	111	105	100	95	117	
	80	121	127	116	112	107	102	97	93	115	
	60	118	125	111	107	103	98	96	93	112	
	50	118	125	110	106	102	98	96	93	112	
	40	117	123	109	106	102	98	97	93	111	

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. Values shown are for inlet L_{wi} , L_{wA} and outlet L_{wo} , L_{wA} sound power levels for Installation Type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.

Dimensional Data

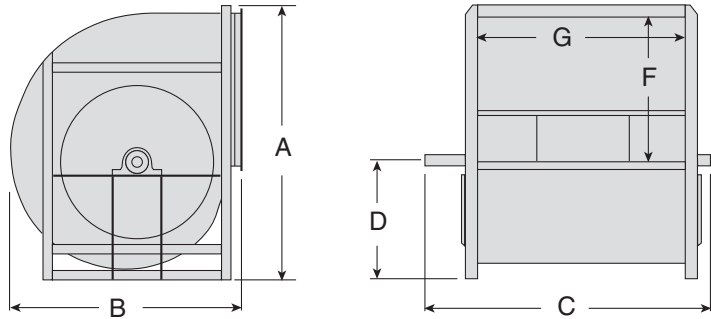
Sizes 12-73 Double-Width Arrangement 3 Class I, II & III

Dimensional data provided is for general information only and should not be used for exact installation dimensions.

Columns A, B and C have been rounded up to the nearest one inch. All other columns are rounded to the nearest 1/8 inch.

For detailed dimensional data refer to the appropriate CAPS submittal drawing.

All dimensional drawings represent clockwise rotation. Counterclockwise would be a mirror image and would not affect dimensions. Rotation is determined from the drive side of the unit.



Clockwise Top Horizontal (TH) discharge shown above

Size	Class	A						B				C	D				F	G
		TH	BH	UB	DB	TAU	BAU	TH	UB	TAU	BAU		TH	BH	UB	DB		
12	I, II	25	26	25	24	30	26	24	25	23	29	27	10 1/4	15 1/4	12 3/4	11 3/4	11 7/8	17 1/2
	III	25	25	25	24	31	26	24	25	23	29	30	10 1/4	15 1/4	12 3/4	12	13	17 1/2
13	I, II	27	28	27	26	33	28	26	27	25	31	29	11 1/8	16 3/8	13 3/8	12 1/2	14 1/4	19 1/4
	III	28	28	27	26	34	28	26	27	25	31	32	11 3/8	16 3/8	13 3/8	12 7/8	14 1/4	19 1/4
15	I, II	30	31	29	28	36	30	28	30	27	34	33	12 1/4	18	15 1/4	13 3/8	15 3/4	21 3/8
	III	30	30	29	28	37	30	28	30	27	34	35	12 1/4	18	15 1/4	13 3/4	15 7/8	21 3/8
16	I, II	33	33	32	30	40	33	30	33	30	37	35	13 3/8	19 3/8	16 3/8	14 1/2	17 3/8	23 1/2
	III	33	33	32	30	41	33	30	32	30	37	37	13 3/8	19 3/8	16 3/8	14 3/4	17 3/8	23 1/2
18	I, II	36	37	34	33	43	35	33	36	32	41	39	14 7/8	21 3/8	18 3/8	15 3/8	19 1/4	26
	III	37	36	34	33	45	35	33	36	32	41	41	14 7/8	21 3/8	18 3/8	15 7/8	19 1/4	26
20	I, II	39	40	37	36	47	39	36	39	35	45	41	16 1/2	23 1/2	19 3/4	16 3/4	21 1/8	28 1/2
	III	40	40	37	36	48	39	36	39	35	45	44	16 1/2	23 1/2	19 3/4	17	21 1/8	28 1/2
22	I, II	43	44	40	39	52	42	39	43	39	49	45	18 1/4	25 7/8	21 3/4	18 1/8	23 3/8	31 3/4
	III	44	44	41	39	53	42	39	43	39	49	48	18 1/4	25 7/8	21 3/4	18 3/8	23 1/2	31 3/4
24	I, II	48	49	44	43	56	47	43	47	43	54	50	20 1/4	28 1/2	23 3/8	19 3/4	25 3/4	34 7/8
	III	49	48	44	43	58	47	43	47	43	54	53	20 1/4	28 1/2	23 3/8	19 3/4	25 3/8	34 7/8
27	I, II	52	53	48	47	61	51	47	52	47	59	53	22 1/4	31 1/8	26	21 1/4	28 3/4	38 3/8
	III	53	53	48	47	63	51	47	52	47	59	57	22 1/4	31 1/8	26	21 3/8	28 1/2	38 3/8
30	I, II	58	59	52	51	68	57	51	57	52	64	58	24 7/8	34 1/2	28 3/8	23 3/8	31 1/4	42 3/4
	III	59	58	53	51	69	57	51	57	52	64	62	24 7/8	34 1/2	28 3/8	23 3/8	31 3/8	42 3/4
33	I, II	66	64	59	56	77	62	56	63	57	72	62	28 5/8	37 5/8	33 3/8	25	34 5/8	46 7/8
	III	66	64	59	56	77	62	56	63	57	72	67	28 5/8	37 5/8	33 3/8	25 1/4	34 3/4	46 7/8
36	I, II	72	71	64	61	85	68	61	70	63	79	67	31 3/8	41 1/4	36 3/8	27 1/4	38 1/4	51 7/8
	III	72	70	64	61	85	68	61	69	63	79	72	31 3/8	41 1/4	36 3/8	27 1/2	38 3/8	51 7/8
40	I, II	79	77	70	67	92	75	67	76	69	87	73	34 1/4	45 1/4	39 3/4	29 3/8	42 1/4	57 1/4
	III	79	77	70	67	92	75	67	76	69	87	79	34 1/4	45 1/4	39 3/4	29 3/8	42 3/8	57 1/4
44	I, II	87	85	76	74	101	82	74	84	76	95	79	37 1/2	49 3/8	43 3/8	32 3/8	46 3/8	63 1/4
	III	87	85	77	74	102	82	74	84	76	95	85	37 1/2	49 3/8	43 3/8	32 3/8	46 3/4	63 1/4
49	I, II	95	93	83	81	111	90	81	92	84	105	88	41	54 3/8	47 3/8	35 1/4	51 3/8	69 3/8
	III	95	93	83	81	111	90	81	92	84	105	93	41	54 3/8	47 3/8	35 3/8	51 1/2	69 3/8
54	I, II	105	102	91	88	122	99	88	102	92	115	96	45	59 3/8	52 1/2	38 1/2	56 3/8	77
	III	105	102	92	89	122	99	89	102	92	115	101	45	59 3/8	52 1/2	38 3/4	56 3/8	77
60	I, II	115	113	100	97	134	109	97	112	102	127	106	49 1/2	65 3/8	57 3/8	42 1/4	62 3/8	85 1/8
	III	115	113	100	98	134	109	98	112	102	127	111	49 1/2	65 3/8	57 3/8	42 3/8	63	85 1/8
66	I, II	127	124	110	107	147	119	107	124	112	139	114	54 1/8	72 1/8	63 3/8	46	69 3/8	93 5/8
	III	127	124	110	107	147	119	107	124	112	139	121	54 1/8	72 1/8	63 3/8	46 1/4	69 3/4	93 5/8
73	I, II	139	136	120	117	162	131	117	136	123	153	125	59 3/8	79 1/2	69 1/2	50 1/2	76 1/2	103 1/2
	III	140	137	120	118	162	131	118	137	123	153	131	59 3/8	79 1/2	69 1/2	50 3/4	76 1/2	103 1/2

Due to Greenheck's policy of continuous product improvement, dimensions are subject to change. For complete dimensional information, refer to the applicable CAPS submittal drawing.

