

Engineering Data

ED 19067-3

Group: **WSHP**

Part Number: **ED 19067-3**

Date: **February 2021**

Sound Power Ratings – SmartSource® Compact Water Source Heat Pumps

Introduction

An exceptional level of Indoor Environmental Quality (IEQ) and personal comfort should be goals for all HVAC designs. Sound quality and the associated sound levels are a few of the many key parameters in measuring personal comfort. To deliver this type of comfort, acoustic consultants may have to be involved for complex and acoustically sensitive applications such as performing arts centers, theaters, and large gathering spaces. However, it is the HVAC designer and the project architect working together who are most likely tasked with creating a comfortable acoustic environment. Given the potentially significant noise contributions from the HVAC system, the HVAC designer must be equipped with specialized tools to help facilitate important acoustic design decisions.

Daikin has developed several tools to assist the design team in evaluating the acoustic performance of HVAC systems. The Application Guide – HVAC Acoustic Fundamentals¹ is a detailed technical reference manual with comprehensive acoustic fundamentals combined with typical HVAC system acoustic analysis guidance. When used in conjunction with Daikin's Acoustic Analyzer™ software and published sound power data from the manufacturer, the design team can estimate the room sound levels. These tools can help to estimate the affect of the HVAC equipment sound levels both in the space and outside of the building. The information generated by the Acoustic Analyzer™ software can help determine if the resulting room sound levels can meet the specifications or if further acoustic attenuation, alternative HVAC equipment or building modifications are necessary.

¹ Daikin Applied Application Guide – HVAC Acoustic Fundamentals, catalog
AG 31-010

System Analysis

Three types of acoustic analyses can be performed with Daikin's Acoustic Analyzer™ software. These include outdoor sound, zoned comfort systems and central systems. This Engineering Document focuses on the SmartSource Compact Water Source Heat Pump sound power data and the resulting indoor sound levels based on a zoned comfort system. However, the Acoustic Analyzer™ software can be used to evaluate the acoustic performance of the following other system types:

- **Outdoor Sound** – this is used to estimate sound levels at the property line or at an adjacent building. The sound source is typically an air-cooled chiller, rooftop unit or cooling tower.
- **Zoned (Decentralized) Comfort Systems** – this is used to estimate sound levels of indoor equipment that resides in or near the occupied space. These include systems that reside in the occupied space (i.e. console water source heat pumps) and units that are ducted away from or above the occupied space (i.e. horizontal and vertical water source heat pumps). The Acoustic Analyzer™ software takes the room effect, duct breakout, return and discharge air noise, and radiated sound pathways into consideration.
- **Central Systems** – this is used to estimate sound levels from HVAC equipment that serve multiple spaces such as a chilled water air handler with multiple VAV boxes in several zones. This analysis tends to be based on larger equipment with greater sound power levels. The Acoustic Analyzer™ divides central systems into two categories; “Large” for applications with open office spaces and “Defined” for all other applications.

This page left intentionally blank

The Acoustic Analyzer™ can perform several acoustic evaluations of a central system, including:

- Supply and return duct sound. A special feature allows the mechanical room to be included in the return air path. This is specifically meant for vertical self-contained systems that often use the mechanical room as the return air plenum.
- Diffuser sound.
- Terminal unit radiated sound.
- Sound transmitted through a wall.
- Sound breakout from any node on the supply or return duct.

The “Zoned (Decentralized) Comfort Systems” analysis should be the basis for evaluating the occupied space sound levels for a water source heat pump system.

For return air sound power input values, subtract 1 dB from each of the published values for free inlet and case radiated data.

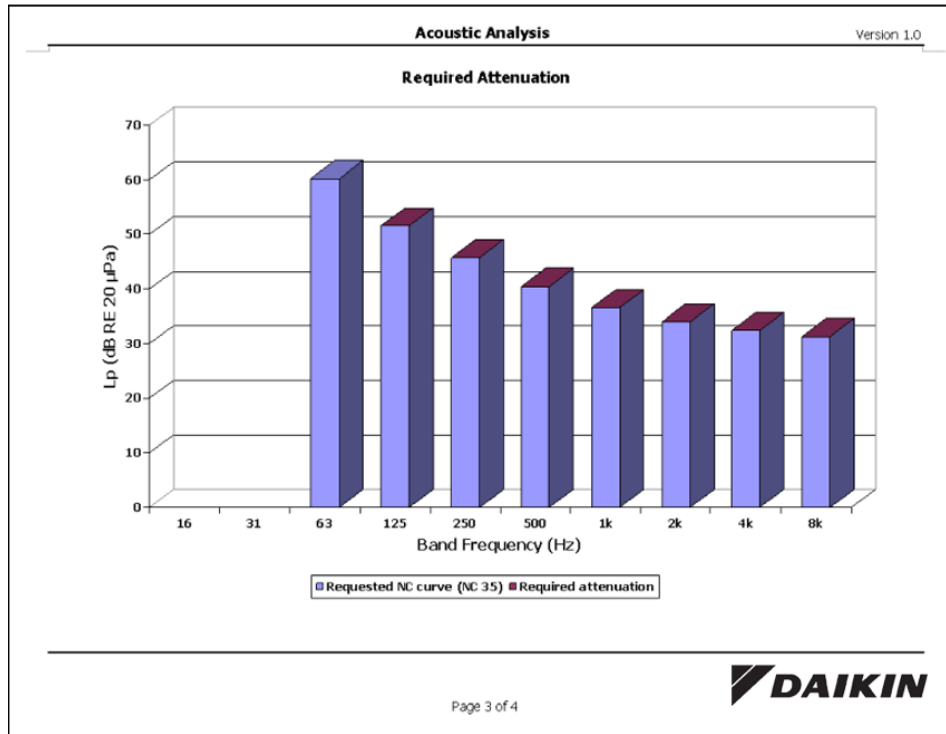
Analysis Summary and Output Reports

To assist the design team in making decisions regarding the proposed system, the Acoustic Analyzer™ provides an easy to follow summary of the calculated results. The summary report provides the basic acoustic analysis information including the room effect calculations, attenuation guidance, and a plot of the resulting sound criteria.

The sound criteria can be determined based on Noise Criteria (NC), Room Criteria (RC) or Noise Rating (NR). An example of the NC evaluation and report is shown in Figure 1.

Figure 1: Examples of the NC Evaluation and Report

Acoustic Analysis				Version 1.0						
Job name	Vertical Stack WSHF	Run name	Cooling High Speed							
Customer name	Acoustic Analysis	HVAC unit	WVHC-015							
Operator	Sample Job	Analysis type	Zoned comfort system							
	Daikin	Analysis subtype	In space							
	Application Engineering									
Summary										
Requested NC level	35	Estimated NR level	32							
Attenuation required	Yes	Estimated RC level	35 (R)							
Estimated NC level	36	Estimated dBA	35							
Room Data										
Room length	20 ft	Total surface area	992 ft²							
Room width	12 ft	Receiver room equation	Thompson							
Room height	8 ft	People	1							
Floor area	240 ft²	Chairs	1							
Room volume	1920 ft³									
Wall, Floor and Ceiling Properties										
Surface	Area	Type	Glass area	Closed curtains						
Wall 1	80 ft²	Curtain wall	80 ft²	Yes						
Wall 2	96 ft²	Drywall on brick wall	0 ft²	No						
Wall 3	160 ft²	Drywall on brick wall	0 ft²	No						
Wall 4	96 ft²	Drywall on brick wall	0 ft²	No						
Floor	240 ft²	Carpet on foam rubber								
Ceiling	240 ft²	Textured concrete ceiling								
Wall Floor and Ceiling Sound Absorption Properties										
Band (Hz)	16	31	63	125	250	500	1k	2k	4k	8k
Wall 1 sound absorption coef.	-	0.07	0.13	0.18	0.06	0.04	0.03	0.02	0.02	0.02
Wall 2 sound absorption coef.	-	0.00	0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.04
Wall 3 sound absorption coef.	-	0.00	0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.04
Wall 4 sound absorption coef.	-	0.00	0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.04
Ceiling sound absorption coef.	-	0.00	0.00	0.01	0.02	0.02	0.06	0.08	0.10	0.08
Floor sound absorption coef.	-	0.03	0.06	0.08	0.27	0.39	0.34	0.48	0.63	0.50
Room constant	-	16	33	49	108	153	177	217	261	241
Important: Daikin disclaims any responsibility for actions based on this program. See Software License and Disclaimer.										
Page 1 of 4										

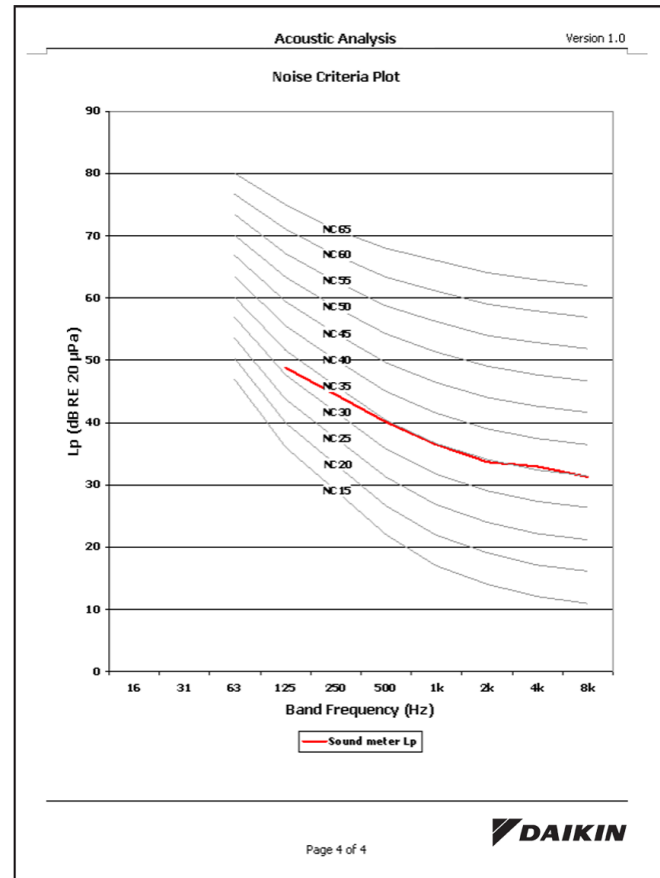
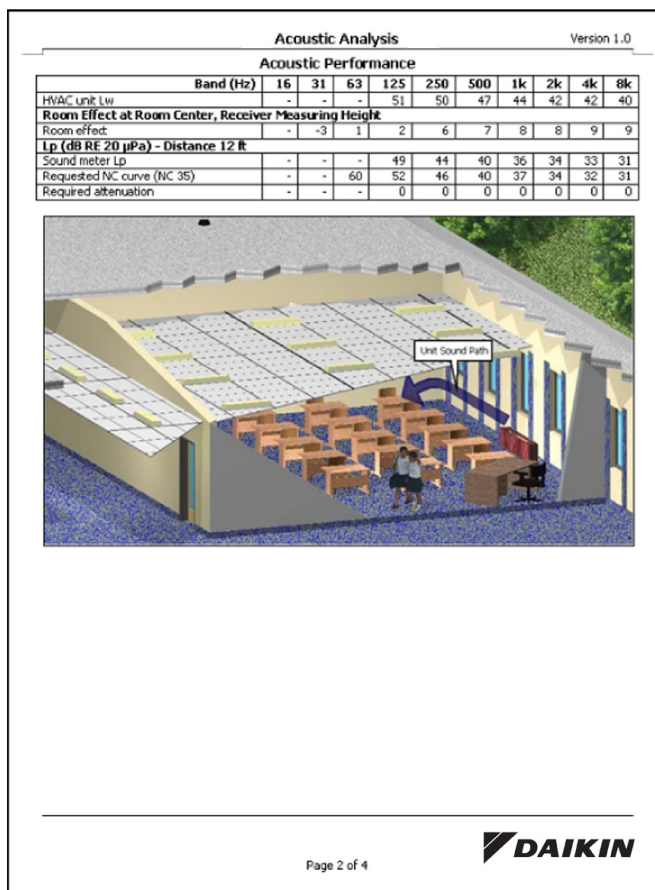


Getting a Copy

For a demo of the Acoustic Analyzer™ software, please visit www.DaikinApplied.com and follow these simple steps:

1. Click on the Resources link from the top bar
2. Click on the Design Software Tools link from the drop down list.
3. On the Software page, click on the Acoustic Analyzer™ Software link.

To order a copy of the software, simply contact your local Daikin sales representative. Use the Sales Locator link on the Software page to find the closest Daikin sales Representative near you.



Sound Power Fundamentals

What is the Difference between Sound and Noise?

Sound pressure is what causes our ear drums to vibrate and what is captured by a microphone to make an audio recording. “Noise” however, is what many people consider an annoyance, a distraction or even a painful reminder of excessive sound pressure. Noise, simply put, can cause an undesirable affect if not properly managed. However, this noise can create a subtle background sound level that can improve the indoor environmental quality if properly designed into the building.

In HVAC systems, noise can lead to uncomfortable indoor environmental quality. However, this same “noise” if properly controlled or attenuated can enhance the comfort of a building by creating subtle background noise. While other noises both inside and outside of the occupied space can affect the indoor noise levels, the HVAC system designer should strive to ensure that the noise levels produced by the HVAC system are appropriate for the space. To do so, the sound pressure must be determined.

What is Sound Pressure?

Sound pressure is a measure of the dynamic pressure that causes local pressure fluctuations in the air molecules. These fluctuations can be measured in Pascals (symbol is Pa) or when expressed in decibels (symbol is dB) the term is known as Sound Pressure Level. This pressure is what is measured by a microphone or perceived by our ear drums.

Sound pressure is very much dependent on the acoustic environment where it is measured or heard. As an example, a room with hard surfaces such as hardwood floors, gypsum wall boards and hard ceilings will have a significantly different measured sound pressure from a room with “soft” absorbent surfaces such as carpets, wall hangings and acoustic tile ceilings. Other factors include the effects of reflective surfaces, distance to the receiver or microphone, room surface treatments, the quantity and location of sound absorbing materials, physical barriers, and the influence of other sound sources in the space. All of these influences should be considered when assessing the acoustic performance of an HVAC system in a particular occupied space.

What is Sound Power?

Sound Power, P_{ac} is a measure of the sonic energy over a unit of time for a given sound source emitted by the source in all directions. This represents the acoustic property of the sound source expressed in watts. Sound power expressed in decibels (dB) is known the Sound Power Level, L_w expressed in a very low base level of energy given as 0.000000000001 or 10^{-12} W.

Most important is that sound power is the acoustic “signature” of the particular sound source. This signature is totally independent of any affect that a room might have on the resulting sound pressure measured in that space.

Sound power is determined in a controlled acoustic environment under tightly controlled laboratory conditions. These laboratories can be reverberant or anechoic rooms with sophisticated sound intensity measurement instrumentation. Sound power can vary dramatically under different operating conditions such as fan speed, static pressure, compressor loading and thermal conditions under which the HVAC system is operating. For this reason, sound power is determined in accordance with ARI Sound Standards to ensure uniformity between different manufactures of similar equipment types. All reputable HVAC manufacturers should publish sound power data for their equipment to assist the system designer in assessing the resulting acoustic affect for a given application.

Table 1 provides a comparison between several different sound sources.

Table 1: Sound Power Sources

Situation and Sound Source	Sound Power P_{ac} watts	Sound Power Level L_w dB re 10^{-12} W
Rocket engine	1,000,000 W	180 dB
Turbojet engine	10,000 W	160 dB
Siren	1,000 W	150 dB
Heavy truck engine or loudspeaker rock concert	100 W	140 dB
Machine gun	10 W	130 dB
Jackhammer	1 W	120 dB
Excavator, trumpet	0.3 W	115 dB
Chain saw	0.1 W	110 dB
Helicopter	0.01 W	100 dB
Loud speech	0.001 W	90 dB
Usual talking	10^{-5} W	70 dB
Refrigerator	10^{-7} W	50 dB

What is the difference between Sound Pressure and Sound Power?

Understanding the difference between sound pressure and sound power is very important when assessing the acoustical performance of the HVAC system. As mentioned above, sound power is the acoustic signature of the equipment, while sound pressure is the resulting measure of what your ear will hear. From the sound power data provided by the manufacturer, an acoustic analysis can be performed using software tools such as the Acoustic Analyzer™. Sound power data is entered into the acoustic analysis tool along with the room properties to calculate the resulting room sound pressure level.

Noise Criteria (NC) and Room Criteria (RC)

In order to understand the potential effect of HVAC-related sound on the building occupants, several criteria have been established to rate or measure the sound to determine its acceptability. To do so, an estimate of both the perceived loudness and the sound quality of the noise should be understood. By using the calculated sound pressure level, the Noise Criteria (NC) or Room Criteria (RC) can be used to determine its acceptability depending on the nature of the application and the desired effect. In general, NC is a single-number rating that is somewhat sensitive to the relative loudness and speech interference properties of a given sound spectrum². The RC method is a family of criterion curves and a rating procedure that assesses background noises in spaces, both on the basis of its effect on speech, and on subjective sound quality³. Both criteria have advantages and disadvantages when attempting to characterize HVAC system generated background noise. The HVAC designer should become fully knowledgeable of the assessment criteria and desired outcome before drawing conclusions regarding the suitability of any solution or a given application. In some cases, seeking the advice of a professional acoustical consultant may be necessary to achieve the desired acoustic performance for the application.

Sound Rating Standards

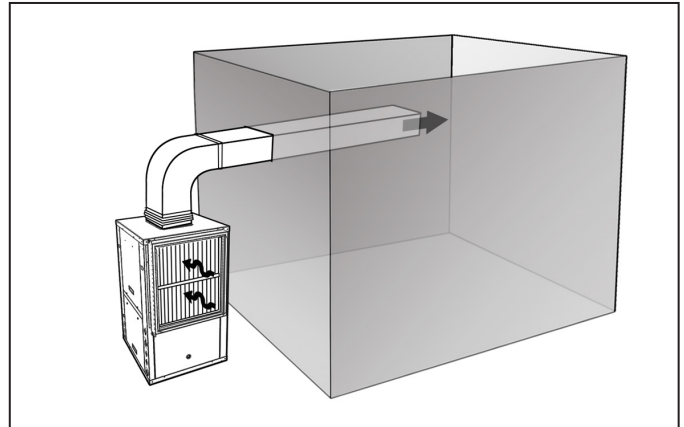
Standard AHRI 260-2012 - Sound Rating of Ducted Air Moving and Conditioning Equipment

Several AHRI standards have been developed to ensure that HVAC manufacturers, who choose to follow the standard, can provide sound power data in accordance documented requirements and recognized industry procedures. The purpose of Standard AHRI 260-2012 is to establish a method of sound rating the indoor portions of ducted air moving and conditioning equipment and to provide definitions; requirements for acquiring mapped sound data; Sound Power Level calculations and ratings; minimum data requirements for published sound ratings; and conformance conditions⁴. As a result, Daikin can provide industry recognized sound power levels to assist HVAC designers in assessing the acoustic performance of the HVAC system.

AHRI 260-2012 has been used to establish the radiated sound power levels for a horizontal or vertical water source heat pump for several different return and discharge air configurations. One of the most common

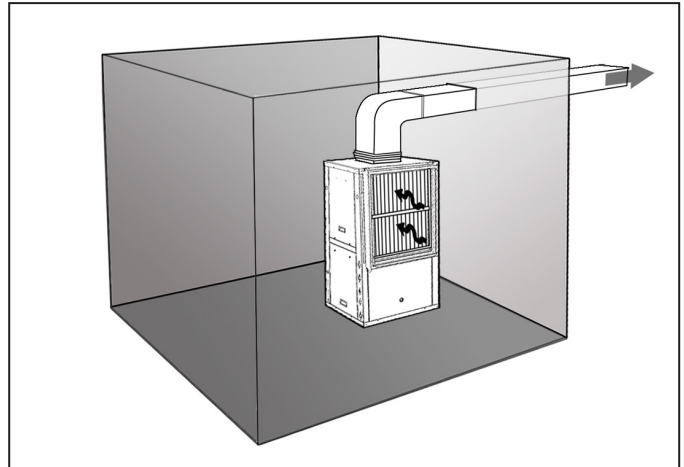
configurations for water source heat pumps is known as the “ducted discharge”. This best represents a typical furred-in application similar to a residential condo, college dormitory or high-rise hotel installation with the return air register located in an adjoining space and where the supply air is ducted into the occupied space. The typical free inlet test setup for ducted discharge arrangements is shown in [Figure 2](#).

Figure 2: Typical Free Inlet Test Set-up for “Ducted Discharge” Applications



Another common configuration has the water source heat pump unit located in a mechanical closet adjacent to the occupied space. A measure of the sound levels inside the mechanical space can be best determined using the free inlet combined with the casing radiated configuration. The test setup for this is shown in [Figure 3](#).

Figure 3: Typical Free Inlet Combined with Casing Radiated Test Set-up



² 2007 ASHRAE Handbook – HVAC Applications, Sound and Vibration Control, “NC: Noise Criteria Method” page 47.31

³ 2007 ASHRAE Handbook – HVAC Applications, Sound and Vibration Control, “RC: Room Criteria Method” page 47.31

⁴ Standard AHRI 260-2012 - Sound Rating of Ducted Air Moving and Conditioning Equipment, Section 1.1 Purpose

Sound Performance - Paying Attention to the Details

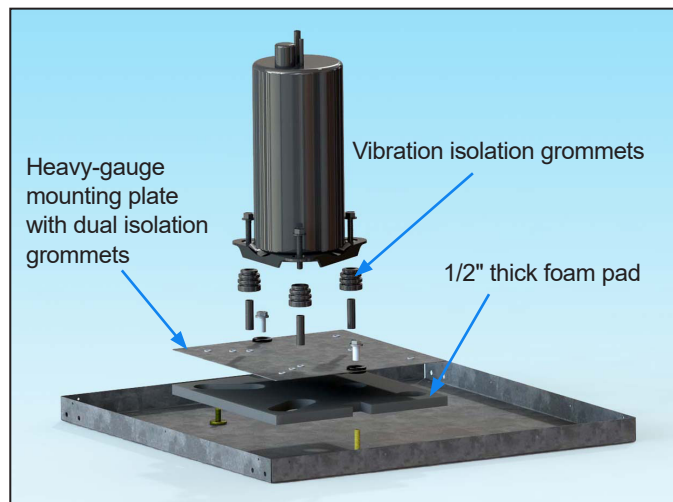
Quiet HVAC equipment does not just happen. It's designed and built into every unit. Daikin's SmartSource Water Source Heat Pump quiet operation comes from decades of HVAC equipment expertise, rigorous attention to details and tenacious acoustic testing right from the start. The smallest of acoustic design details for each new product are painstakingly evaluated from an acoustic signature perspective. Acoustic evaluations take place in Daikin's reverberant sound lab to ensure the proper attention is given to the acoustic details of each new product.

Daikin's SmartSource Water Source Heat Pumps include many acoustic enhancements to minimize sound levels where it is needed the most.

Double Vibration Isolation

Provided as standard, the compressor mount has a unique dual-level vibration isolation system. The compressor is mounted on vibration isolation grommets resting on a heavy gauge mounting plate, and then isolated from the cabinet base with rubber grommets to minimize vibration transfer. The compressor is equipped with thermal overload protection and is located in a well-insulated compartment away from the air stream to minimize sound transmission.

Figure 8: Dual-Level Vibration Isolation System



Cabinet Insulation

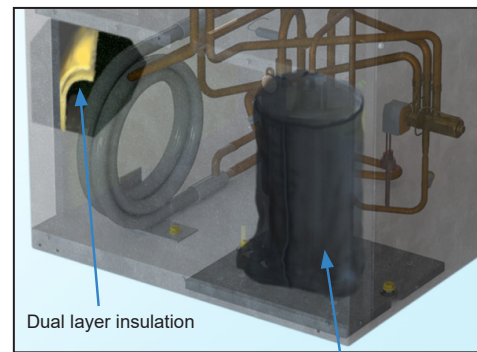
Dual density 1/2" fiberglass insulation is standard on all Compact units for improved thermal and acoustic performance. The insulation meets NFPA 90A requirements, air erosion and mold growth limits of UL-181, fungal resistance test per ASTM-C1071 and ASTM G21, and meets zero level bacteria growth per ASTM G22. All insulation has a flame spread of less than 25 and a smoke developed classification of less than 50 per ASTM E-84 and UL 723.

Sound Package

As a factory installed option, unit sizes 024-070 utilize a sound attenuating compressor blanket combined with a dual layer of fiberglass insulation that is strategically placed in the air handling compartment.

Unit sizes 007-019 have a dual layer of fiberglass insulation that is strategically placed in both the air handling and compressor compartments.

Sound attenuating compressor blankets for unit sizes 024-070 are available as a standalone option without the optional sound package.

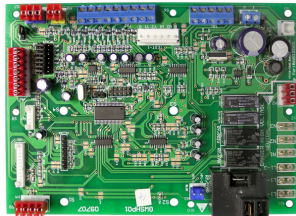


Sound attenuating compressor blanket

Smart Airflow Control

Since most of the operating hours are under part load conditions, the SmartSource unit will remain quieter, longer due to its Smart Airflow Control. Using the MicroTech III SmartSource controls combined with intelligent EC motors, the SmartSource units will reduce the air flow as the room temperature approaches setpoint conditions. Lower air flow means lower sound levels for most operating hours.

Figure 9: MicroTech III SmartSource Unit Controller & I/O Expansion Module



MicroTech III SmartSource Unit Controller



I/O Expansion Module

EC Fan Motors for Low Static Applications

Fan systems using PSC motors will get louder under low static conditions due to increased motor speeds. However, the SmartSource Compact units with EC motors will get quieter in low static applications. EC constant torque motors are used on SmartSource compact units sizes 007-070. Unit sizes 015 through 070 offer five selectable motor speed taps. EC constant CFM motors are used on sizes 015 through 070. These motors are smart enough to know their current draw and RPM to ensure that a constant air flow is delivered regardless of the static pressure. As the static pressure is reduced, so is the fan speed. When the fan speed is reduced, so are the sound levels.

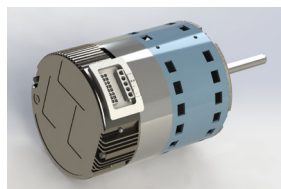
Figure 10: EC Fan Motors



**Constant Torque EC Motor
Sizes 007-012**



**Constant Torque EC Motor
Sizes 015-070**



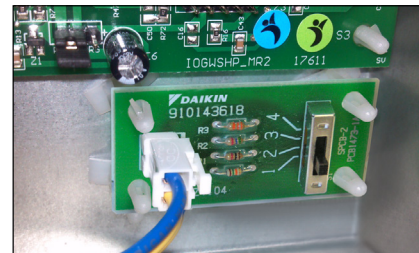
**Constant CFM EC Motor
Sizes 015-070**

Field Adjustable Fan Speed Selector Switch for EC Motors

Available on units with EC constant torque motor (sizes 007-012) and EC constant CFM motor (sizes 015-070).

If noise levels are too high, the user can simply switch the fan speed on the 4-position fan speed selector switch located in the unit control box to a lower air flow setting. Lower air flow means lower sound levels.

Figure 11: Adjustable Fan Speed Selector Switch



Field Installation Guidelines

It is always important to ensure that each unit is installed with the utmost attention to detail. Most importantly, follow the manufacturer's installation instructions! These installation guidelines should be followed to minimum vibration transmission to the building structure and to minimize discharge air and casing radiated sound levels.

Ductwork Attenuation

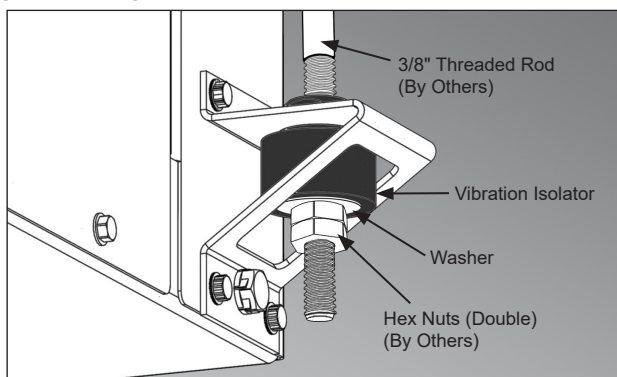
Suggested duct layout for multiple diffuser application

- All ductwork should conform to industry standards of good practice as described in ASHRAE Systems Guide.
- Ductwork is normally applied to ceiling, closet or floor mounted heat pumps on the discharge of the unit.
- A discharge collar is provided on all models to facilitate ductwork connection. The inclusion of a canvas connector is recommended between the discharge collar and duct transformation (enlargement).
- The heat pump location must allow the incorporation of an elbow, without turning vanes, after the transformation from discharge collar to full trunk duct to interrupt line-of-sight propagation of sound rays. One inch (25mm) acoustic duct lining should extend in both directions for a distance of at least two equivalent duct diameters.
- For maximum attenuation, the last five equivalent duct diameters before each air outlet (register) should be lined with one inch (25mm) acoustic duct liner.

Vibration Isolation Hanger Kits

Each horizontal unit is furnished with a mounting kit that includes heavy metal hanger brackets for hanging the unit from field-supplied hanger rods. Rubber isolators are included for sound and vibration attenuation, as are mounting washers, bolts and lock washers. The hangers are attached to fasteners at each corner of the unit, which are an integral part of the cabinet.

Figure 4: Hanger Bracket Detail



- Elbows, tees or dampers create turbulence and distortion in the airflow. A straight length of 5 to 10 equivalent duct diameters is recommended to smooth out flow before the next fitting or terminal. Take-off of diffuser necks directly from the bottom of a trunk duct produces noise. If utilizing volume control dampers, locate them several equivalent duct diameters upstream from the air outlet.
- For a hotel, motel, dormitory or nursing home application, using a single duct register discharge from one machine, a maximum velocity of 500 to 600 fpm (2.54 to 3.048 m/s) is suggested. These applications involve system static pressures as low as 0.05 inches of water (0.012 kPa) and relatively short duct lengths. Discharge duct must include full lining and a square elbow without turning vanes. Return air for these applications should enter through a low side wall filter-grille and route up the stud space to ceiling plenum. Return air ceiling grilles are not recommended. For horizontal type heat pumps mounted in a suspended ceiling, an acoustic attenuator can be placed at the air inlet to attenuate line-of-sight sound transmission through return openings, see [Figure 7](#).
- For closet mounted heat pumps with return air through louvered doors, avoid line-of-sight connection between rear of louvers and air inlet to heat pump for maximum sound attenuation. Louver section should be boxed in and lined with one inch (25mm) acoustic material if louver space does not permit a break in line-of-sight transmission.
- Unit must be located on top of a vibration absorbing material such as a rubber (Isolation pad) that is the same size as the base of the unit, to minimize vibration and noise ([Figure 5](#)). Alternatively, the unit can have a ducted return air with the opening facing the door and the major access panels facing 90° to the door.

Figure 5: Typical Vertical Unit Closet Installation

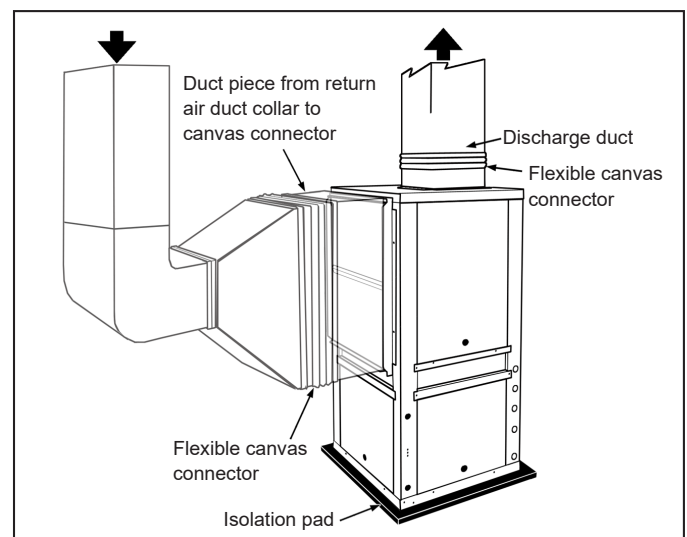
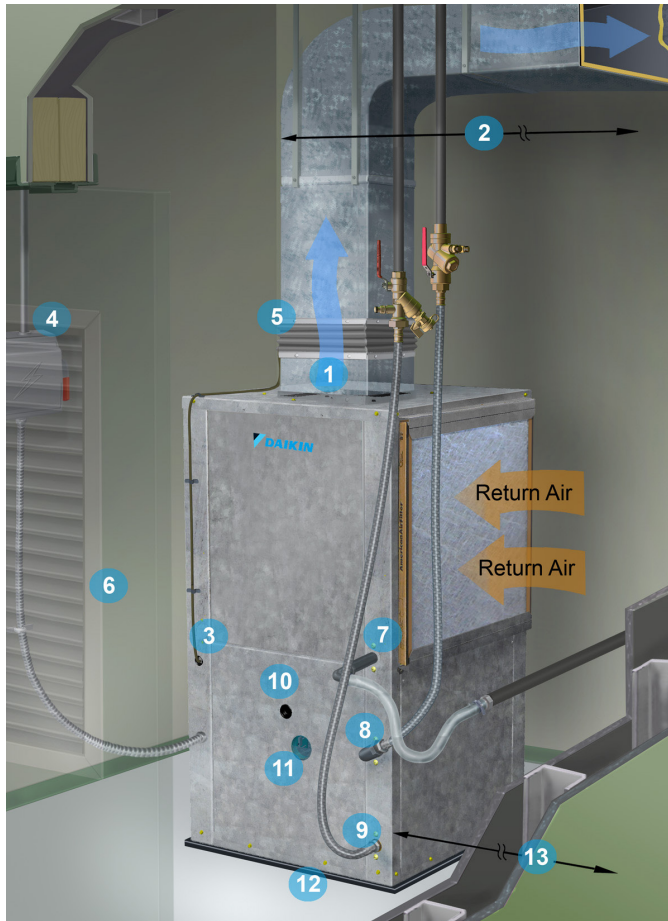


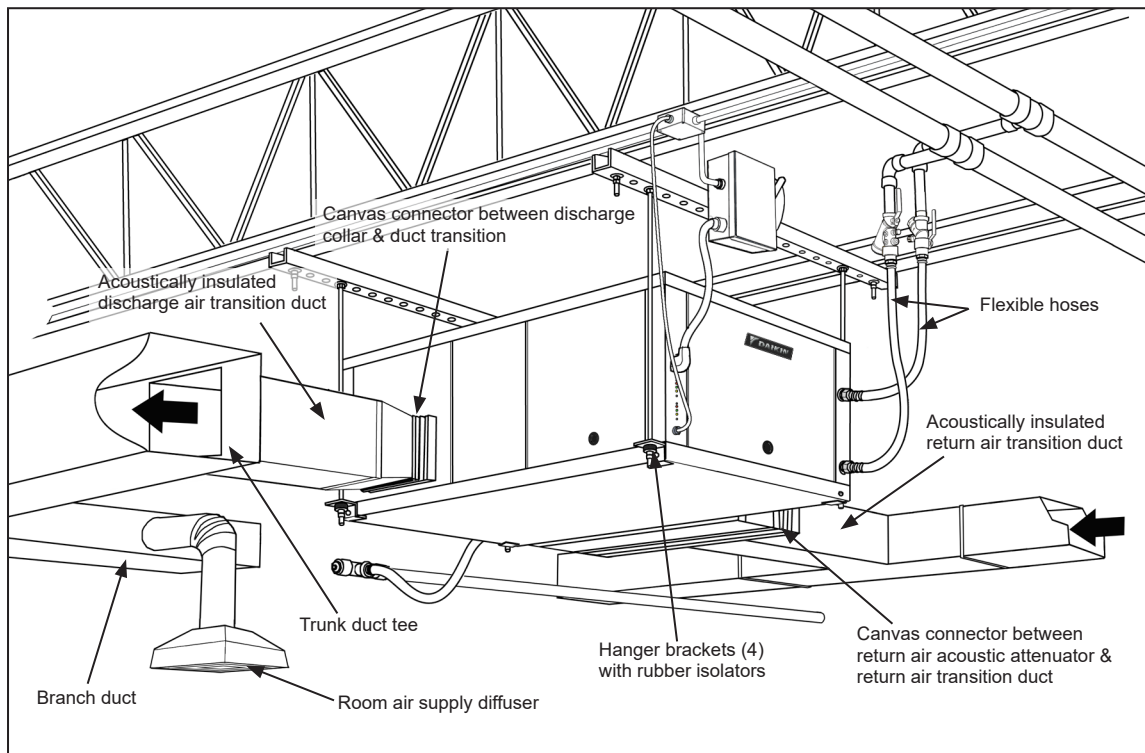
Figure 6: Vertical GCV unit - typical installation in small mechanical room or closet



1. Discharge air
2. Acoustic thermal duct lining - 10 feet
3. Low voltage wiring to unit control box
4. Line voltage disconnect
5. Flexible duct collar
6. Louvered closet door
7. Condensate drain
8. Flexible, braided, stainless steel return hose with flow controller/ball valve with port
9. Flexible, braided, stainless steel supply hose with Y-strainer/ball valve with port
10. Access to unit control box
11. LED annunciator lights sight glass to view unit operation status and faults
12. Full vibration isolation pad between unit and floor
13. Minimum distance between return air (filter) and wall for non-ducted return applications

- Size 007-012 – 5 inches
- Size 015-024 – 5 inches
- Size 030-036 – 6 inches
- Size 042-048 – 8 inches
- Size 060-070 – 10 inches

Figure 7: Typical Ceiling Unit Installation



Model GCH – Standard Unit, Sizes 007-015

Table 2: Sound Power Data for Model GCH with Standard Insulation – Sizes 007–015

Unit Size-Motor	Mode Speed		ARI-260-2012, 4.4.1 Sound Data, Sound Power (dB) re 1 pW									ARI-260-2012, 4.4.4 Sound Data, Sound Power (dB) re 1 pW							
			Ducted Discharge Octave Band Frequency, Hz									Free Inlet & Case Radiated Octave Band Frequency, Hz							
			125	250	500	1000	2000	4000	8000	dB "A" 1 pW		125	250	500	1000	2000	4000	8000	dB "A" 1 pW
007 ECM	Fan Only	High	63	56	61	54	52	45	41	61		53	54	55	50	39	35	36	54
		Low	56	50	56	44	48	37	33	54		46	48	50	44	34	27	33	49
	Cooling	High	65	58	57	57	54	48	45	61		58	59	55	52	42	38	38	56
		Low	59	53	56	47	50	42	39	56		54	56	51	48	39	34	36	53
	Heating	High	65	58	58	58	53	47	43	61		57	58	55	53	43	39	38	56
		Low	59	53	56	47	49	40	36	55		54	55	51	47	39	33	36	52
007 PSC	Fan Only	High	66	60	59	57	54	48	42	62		57	58	56	55	42	38	34	57
		Low	62	59	58	52	50	44	39	59		52	57	57	51	38	34	32	56
	Cooling	High	66	60	59	57	54	48	43	62		59	60	56	56	42	38	36	58
		Low	62	58	58	51	50	44	39	59		57	61	58	51	39	35	34	57
	Heating	High	66	60	59	58	53	48	42	62		59	60	57	55	43	39	37	58
		Low	63	57	57	52	50	44	38	59		56	59	57	53	41	36	35	57
009 ECM	Fan Only	High	64	57	58	58	53	47	43	61		55	56	55	52	41	37	37	55
		Low	56	50	56	45	48	38	35	54		47	48	49	45	37	31	34	49
	Cooling	High	66	59	57	59	55	50	47	63		58	59	56	54	44	41	40	58
		Low	59	53	59	48	51	43	41	59		54	56	53	49	40	35	36	53
	Heating	High	65	60	58	58	54	49	45	62		57	59	56	54	44	40	39	57
		Low	59	53	61	48	50	42	38	59		54	55	55	48	40	34	36	54
009 PSC	Fan Only	High	67	61	60	60	56	50	45	63		57	60	58	56	44	41	38	59
		Low	62	59	58	52	50	44	39	59		52	57	57	51	38	34	32	56
	Cooling	High	67	61	60	60	56	50	46	64		60	61	58	56	44	40	38	59
		Low	62	58	58	51	50	44	39	59		57	61	58	51	39	35	34	57
	Heating	High	67	61	60	59	55	50	45	63		59	61	59	56	44	41	38	59
		Low	63	57	57	52	50	44	38	59		56	59	57	53	41	36	35	57
012 ECM	Fan Only	High	65	58	57	59	55	49	45	62		55	56	55	53	43	40	38	56
		Low	58	52	57	47	50	42	38	57		49	51	51	47	39	32	35	51
	Cooling	High	65	58	56	58	56	50	47	62		59	58	57	54	45	41	41	58
		Low	62	56	60	51	52	46	43	60		60	58	55	52	42	39	40	56
	Heating	High	64	59	57	58	55	50	46	62		56	58	55	54	45	41	40	57
		Low	61	56	60	53	51	45	42	60		55	57	53	51	42	37	38	55
012 PSC	Fan Only	High	68	63	63	60	58	53	49	66		58	62	60	57	47	43	41	60
		Low	62	59	58	52	50	44	39	59		52	57	57	51	38	34	32	56
	Cooling	High	69	64	63	60	59	54	50	66		60	62	60	58	47	43	41	61
		Low	62	58	58	51	50	44	39	59		57	61	58	51	39	35	34	57
	Heating	High	69	63	63	61	58	53	49	66		60	62	60	57	47	43	40	60
		Low	63	57	57	52	50	44	38	59		56	59	57	53	41	36	35	57
015 ECM	Fan Only	High	50	51	47	46	43	37	32	51		47	48	49	43	34	28	30	48
		Low	45	45	39	38	34	27	30	43		41	44	42	36	25	21	30	41
	Cooling	High	53	54	49	47	45	41	34	53		56	56	55	47	41	40	43	54
		Low	49	53	43	42	39	32	32	48		57	56	55	45	39	38	42	54
	Heating	High	58	57	51	48	46	42	34	54		63	58	56	50	42	39	36	56
		Low	62	54	46	44	41	34	31	52		64	59	55	47	40	39	37	55
015 PSC	Fan Only	High	59	58	55	54	54	50	42	60		56	55	56	51	44	40	34	56
		Low	59	58	55	54	54	50	42	60		56	55	56	51	44	40	34	56
	Cooling	High	60	58	54	54	54	50	43	60		59	57	59	51	45	42	43	58
		Low	60	58	54	54	54	50	43	60		59	57	59	52	45	42	43	58
	Heating	High	61	58	55	54	53	49	41	60		56	55	56	51	44	40	34	56
		Low	61	58	55	54	53	49	41	60		56	55	56	51	44	40	34	56

Model GCH – Standard Unit, Sizes 018-036

Table 3: Sound Power Data for Model GCH with Standard Insulation – Sizes 018–036

Unit Size-Motor	Mode Speed		ARI-260-2012, 4.4.1 Sound Data, Sound Power (dB) re 1 pW									ARI-260-2012, 4.4.4 Sound Data, Sound Power (dB) re 1 pW								
			Ducted Discharge Octave Band Frequency, Hz									Free Inlet & Case Radiated Octave Band Frequency, Hz								
			125	250	500	1000	2000	4000	8000	dB “A” 1 pW		125	250	500	1000	2000	4000	8000	dB “A” 1 pW	
018 ECM	Fan Only	High	53	53	50	49	47	42	35	54		49	51	52	46	38	32	31	51	
		Low	46	49	41	40	37	30	30	46		43	45	45	39	29	23	30	44	
	Cooling	High	55	55	52	51	49	46	38	56		57	56	56	49	43	40	43	55	
		Low	51	51	46	45	43	37	33	51		59	55	54	46	40	40	43	54	
	Heating	High	58	57	53	52	50	46	38	57		64	57	56	50	44	39	36	56	
		Low	60	54	49	47	44	38	32	53		64	56	54	48	40	38	37	55	
018 PSC	Fan Only	High	59	57	54	54	53	50	42	59		55	54	56	50	44	39	33	55	
		Low	59	58	55	54	54	50	42	60		56	55	56	51	44	40	34	56	
	Cooling	High	60	57	54	54	54	50	43	59		59	57	59	51	45	42	43	58	
		Low	60	58	54	54	54	50	43	60		59	57	59	52	45	42	43	58	
	Heating	High	60	58	55	54	53	49	41	59		66	59	58	51	45	41	36	58	
		Low	61	58	55	54	53	49	41	60		64	59	58	52	47	42	37	58	
024 ECM	Fan Only	High	62	56	54	52	51	46	37	58		53	54	54	50	44	38	32	55	
		Low	56	50	47	46	43	36	31	51		47	48	49	45	34	28	31	48	
	Cooling	High	66	63	57	56	55	52	44	62		59	62	61	54	47	43	44	60	
		Low	61	62	51	49	47	41	34	57		58	62	60	51	41	36	42	58	
	Heating	High	66	62	59	57	55	51	43	63		65	63	60	56	49	44	40	61	
		Low	66	61	52	50	47	41	33	58		68	66	58	53	44	39	41	61	
024 PSC	Fan Only	High	72	65	63	62	60	58	51	68		62	61	60	56	50	47	41	61	
		Low	68	61	59	57	56	53	45	63		59	58	58	53	47	43	36	58	
	Cooling	High	74	66	63	62	61	59	52	68		63	64	63	57	50	47	45	63	
		Low	72	67	58	57	56	53	46	64		61	63	62	55	47	43	44	61	
	Heating	High	72	65	63	61	60	57	50	67		67	65	61	57	50	46	43	62	
		Low	71	64	60	57	56	53	45	64		67	65	61	56	48	44	40	62	
030 ECM	Fan Only	High	68	63	61	59	58	55	47	65		58	59	59	55	50	46	38	60	
		Low	59	53	50	49	47	41	33	55		49	51	51	47	39	32	31	51	
	Cooling	High	71	66	64	62	62	59	53	68		62	65	63	58	52	50	46	63	
		Low	65	61	56	54	53	49	41	60		57	63	61	53	45	41	43	60	
	Heating	High	71	67	65	63	61	59	52	69		65	65	63	59	53	50	44	64	
		Low	66	62	58	55	54	50	41	62		66	63	59	55	47	42	40	60	
030 PSC	Fan Only	High	74	71	67	67	66	64	58	73		64	70	64	61	54	52	46	66	
		Low	72	68	65	64	63	61	55	70		63	67	61	58	51	48	42	63	
	Cooling	High	75	74	67	68	67	65	60	74		65	73	65	62	55	53	49	67	
		Low	73	70	65	65	64	62	56	71		64	69	63	59	52	49	46	64	
	Heating	High	74	71	67	67	65	63	57	72		66	69	64	61	54	52	46	66	
		Low	72	68	64	64	62	60	53	70		68	67	62	59	51	47	43	64	
036 ECM	Fan Only	High	69	64	65	61	59	57	50	67		62	63	62	57	51	48	43	62	
		Low	59	53	56	51	48	44	35	57		53	56	54	49	41	36	30	54	
	Cooling	High	73	66	68	65	63	61	55	71		73	70	65	62	56	52	48	67	
		Low	70	60	61	57	56	53	46	64		72	64	62	56	49	45	43	63	
	Heating	High	71	66	68	65	62	60	54	70		73	69	65	61	55	52	48	67	
		Low	68	59	61	57	55	52	45	63		72	63	61	56	49	44	42	63	
036 PSC	Fan Only	High	72	67	69	66	64	62	56	72		68	68	64	60	54	52	46	66	
		Low	70	64	65	64	61	58	52	68		65	65	62	57	50	48	42	63	
	Cooling	High	75	67	68	66	64	62	56	71		75	69	65	61	54	52	48	67	
		Low	75	64	66	64	61	59	53	69		74	67	64	58	51	48	45	65	
	Heating	High	73	66	69	66	63	61	55	71		73	68	64	60	54	51	47	66	
		Low	69	64	66	64	60	58	52	68		73	66	64	57	51	47	44	64	

Model GCH – Standard Unit, Sizes 042-070

Table 4: Sound Power Data for Model GCH with Standard Insulation – Sizes 042–070

Unit Size-Motor	Mode		ARI-260-2012, 4.4.1 Sound Data, Sound Power (dB) re 1 pW									ARI-260-2012, 4.4.4 Sound Data, Sound Power (dB) re 1 pW								
			Ducted Discharge Octave Band Frequency, Hz									Free Inlet & Case Radiated Octave Band Frequency, Hz								
			125	250	500	1000	2000	4000	8000	dB "A" 1 pW		125	250	500	1000	2000	4000	8000	dB "A" 1 pW	
042 ECM	Fan Only	High	70	64	66	61	59	56	49	67		69	62	61	58	54	49	42	63	
		Low	63	57	59	54	51	46	38	60		61	56	54	52	46	39	33	56	
	Cooling	High	74	68	69	65	63	60	53	71		79	67	64	62	59	54	49	69	
		Low	69	62	64	57	56	52	44	65		79	62	60	57	52	46	48	66	
	Heating	High	75	67	69	65	62	59	51	71		80	66	64	61	59	53	49	69	
		Low	70	61	64	58	55	51	42	65		80	62	60	56	53	47	47	67	
042 PSC	Fan Only	High	75	69	70	67	64	62	55	72		70	67	63	60	56	53	46	66	
		Low	73	67	68	65	63	61	53	71		67	65	61	59	53	50	44	64	
	Cooling	High	76	70	70	67	65	62	55	73		73	67	63	61	57	53	48	66	
		Low	74	67	68	65	63	61	53	71		72	66	61	60	53	50	47	65	
	Heating	High	73	69	70	67	64	61	53	72		71	67	63	60	56	52	47	66	
		Low	71	67	67	65	62	60	52	70		71	65	61	59	53	49	46	64	
048 ECM	Fan Only	High	70	65	65	64	62	60	53	69		63	63	61	59	53	50	44	63	
		Low	60	56	56	53	51	47	37	58		53	55	54	50	41	37	31	54	
	Cooling	High	74	69	67	67	66	64	58	73		68	67	64	62	56	54	50	66	
		Low	67	62	61	59	58	55	47	65		66	65	60	57	50	47	45	62	
	Heating	High	74	70	68	68	66	64	58	73		71	71	64	62	57	54	49	68	
		Low	68	63	63	60	58	55	48	66		74	72	60	57	50	47	44	66	
048 PSC	Fan Only	High	75	71	69	70	68	66	60	75		68	70	67	63	57	55	51	69	
		Low	72	69	67	67	65	63	56	72		66	67	63	60	53	50	45	64	
	Cooling	High	80	71	69	70	68	66	60	75		70	73	66	64	57	55	50	69	
		Low	76	67	67	64	63	60	53	70		69	69	64	60	53	50	47	66	
	Heating	High	74	74	69	70	67	64	58	74		72	74	65	63	57	54	49	69	
		Low	71	70	65	64	61	58	51	69		74	71	62	60	54	50	46	67	
060 ECM	Fan Only	High	76	67	68	67	67	65	58	73		70	69	65	62	58	54	48	67	
		Low	66	57	59	58	57	52	44	63		61	60	57	54	48	42	35	59	
	Cooling	High	79	71	71	70	71	68	62	77		75	73	68	65	60	58	52	71	
		Low	74	64	65	64	64	61	53	70		73	67	63	60	55	51	47	66	
	Heating	High	79	72	71	70	70	68	61	76		76	75	68	65	61	59	53	71	
		Low	73	65	65	64	63	60	53	70		73	74	64	61	56	52	50	68	
060 PSC	Fan Only	High	80	72	72	71	71	69	63	77		72	72	68	65	61	58	52	70	
		Low	77	69	69	68	69	66	59	74		71	70	65	63	58	54	48	68	
	Cooling	High	80	73	72	71	71	69	63	77		74	73	68	65	61	58	53	71	
		Low	78	70	69	68	69	66	59	75		73	70	66	63	58	54	50	68	
	Heating	High	80	73	71	70	70	68	62	76		77	78	68	65	61	58	52	72	
		Low	77	70	68	68	67	64	57	74		76	76	67	63	59	54	50	71	
070 ECM	Fan Only	High	70	65	65	65	66	64	58	71		66	66	63	60	56	54	53	66	
		Low	58	53	54	54	53	49	41	59		56	56	54	51	45	40	44	55	
	Cooling	High	75	68	68	68	69	68	62	75		71	70	66	64	58	57	52	69	
		Low	71	60	61	60	62	59	53	67		69	68	62	57	52	49	46	64	
	Heating	High	74	68	67	68	68	67	61	74		77	77	66	64	59	58	53	71	
		Low	71	64	61	61	61	59	52	67		77	75	63	58	54	51	48	69	
070 PSC	Fan Only	High	77	71	70	71	71	70	65	77		70	74	68	65	60	59	55	71	
		Low	74	67	66	67	66	64	58	72		69	69	65	62	57	54	50	67	
	Cooling	High	77	72	71	71	71	71	65	77		72	74	69	66	61	60	56	71	
		Low	73	66	68	66	67	64	58	72		71	72	66	62	57	54	51	68	
	Heating	High	74	69	68	68	68	66	60	74		78	79	69	64	60	59	55	73	
		Low	73	67	67	66	66	63	57	72		77	77	66	61	57	54	51	71	

Model GCH – Unit With Sound Package, Sizes 007-015

Table 5: Sound Power Data for Model GCH with Sound Package Insulation – Sizes 007–015

Unit Size-Motor	Mode Speed		ARI-260-2012, 4.4.1 Sound Data, Sound Power (dB) re 1 pW									ARI-260-2012, 4.4.4 Sound Data, Sound Power (dB) re 1 pW								
			Ducted Discharge Octave Band Frequency, Hz									Free Inlet & Case Radiated Octave Band Frequency, Hz								
			125	250	500	1000	2000	4000	8000	dB "A" 1 pW		125	250	500	1000	2000	4000	8000	dB "A" 1 pW	
007 ECM	Fan Only	High	63	56	60	53	52	45	40	60		53	54	53	49	38	33	33	53	
		Low	56	50	55	43	48	37	33	53		47	48	48	43	33	26	30	47	
	Cooling	High	65	59	57	55	54	48	44	60		55	59	52	50	40	35	34	54	
		Low	60	53	55	45	51	42	39	56		52	55	49	46	37	31	32	51	
	Heating	High	65	59	57	55	53	47	43	60		57	58	54	52	42	37	35	55	
		Low	60	54	55	44	49	40	35	54		54	55	50	46	38	31	32	51	
007 PSC	Fan Only	High	66	60	58	56	54	48	42	61		57	59	54	54	41	36	31	56	
		Low	62	59	57	50	50	44	38	58		53	58	55	50	38	33	29	55	
	Cooling	High	67	61	58	56	54	48	43	61		56	60	54	54	40	36	32	56	
		Low	63	58	58	49	50	44	39	58		54	60	55	49	38	32	31	55	
	Heating	High	67	60	58	56	54	48	41	61		59	60	56	54	42	37	33	57	
		Low	64	57	57	50	50	44	38	58		57	60	55	52	40	34	31	56	
009 ECM	Fan Only	High	64	57	57	57	53	47	42	60		55	56	53	51	40	36	34	54	
		Low	57	50	55	43	49	38	34	53		48	49	47	44	37	29	31	48	
	Cooling	High	66	60	57	58	55	50	46	62		55	59	54	52	42	38	36	56	
		Low	60	54	59	46	51	43	40	58		52	56	50	46	38	32	33	51	
	Heating	High	66	60	57	56	54	49	44	61		58	59	55	53	43	38	36	56	
		Low	60	53	61	46	50	42	38	58		54	55	54	47	39	32	32	53	
009 PSC	Fan Only	High	67	61	59	58	56	50	45	62		58	60	56	55	44	39	35	58	
		Low	62	59	57	50	50	44	38	58		53	58	55	50	38	33	29	55	
	Cooling	High	67	62	59	58	56	50	46	63		57	61	55	54	42	38	34	57	
		Low	63	58	58	49	50	44	39	58		54	60	55	49	38	32	31	55	
	Heating	High	68	61	60	57	55	50	44	62		59	61	57	55	43	38	34	58	
		Low	64	57	57	50	50	44	38	58		57	60	55	52	40	34	31	56	
012 ECM	Fan Only	High	65	58	56	57	55	49	45	61		56	56	53	52	42	38	36	55	
		Low	59	52	56	46	50	42	38	56		50	51	49	46	39	30	32	50	
	Cooling	High	65	59	56	56	56	50	47	61		56	58	54	52	43	39	37	56	
		Low	63	57	59	49	52	46	43	59		57	57	52	50	40	37	36	54	
	Heating	High	65	59	57	56	55	50	46	61		56	58	54	53	44	39	36	56	
		Low	62	56	60	51	51	45	42	59		55	57	52	50	41	35	34	54	
012 PSC	Fan Only	High	69	63	62	59	59	53	49	65		59	62	58	56	46	42	38	59	
		Low	62	59	57	50	50	44	38	58		53	58	55	50	38	33	29	55	
	Cooling	High	69	64	63	59	59	54	50	65		57	62	57	56	45	40	38	59	
		Low	63	58	58	49	50	44	39	58		54	60	55	49	38	32	31	55	
	Heating	High	69	64	63	59	58	53	49	65		60	62	58	56	46	40	36	60	
		Low	64	57	57	50	50	44	38	58		57	60	55	52	40	34	31	56	
015 ECM	Fan Only	High	50	51	47	46	43	37	32	51		47	49	48	42	33	27	26	47	
		Low	45	45	39	38	34	27	30	43		42	44	41	35	23	21	26	41	
	Cooling	High	53	54	49	47	45	41	34	53		58	56	54	46	39	39	42	54	
		Low	49	53	43	42	39	32	32	48		59	56	53	44	38	37	42	53	
	Heating	High	58	57	51	48	46	42	34	54		61	56	55	49	41	39	36	55	
		Low	62	54	46	44	41	34	31	52		61	57	54	46	39	39	37	54	
015 PSC	Fan Only	High	59	58	55	54	54	50	42	60		56	55	55	50	43	39	29	55	
		Low	59	58	55	54	54	50	42	60		56	55	55	50	43	39	29	55	
	Cooling	High	60	58	54	54	54	50	43	60		61	57	57	50	44	42	43	57	
		Low	60	58	54	54	54	50	43	60		61	57	57	50	44	42	43	57	
	Heating	High	61	58	55	54	53	49	41	60		53	53	55	50	43	40	34	54	
		Low	61	58	55	54	53	49	41	60		53	53	55	50	43	40	34	54	

Model GCH – Unit With Sound Package, Sizes 018-036

Table 6: Sound Power Data for Model GCH with Sound Package Insulation – Sizes 018–036

Unit Size-Motor	Mode Speed		ARI-260-2012, 4.4.1 Sound Data, Sound Power (dB) re 1 pW									ARI-260-2012, 4.4.4 Sound Data, Sound Power (dB) re 1 pW								
			Ducted Discharge Octave Band Frequency, Hz									Free Inlet & Case Radiated Octave Band Frequency, Hz								
			125	250	500	1000	2000	4000	8000	dB "A" 1 pW		125	250	500	1000	2000	4000	8000	dB "A" 1 pW	
018 ECM	Fan Only	High	53	53	50	49	47	42	35	54		50	51	51	45	37	32	26	50	
		Low	46	49	41	40	37	30	30	46		44	45	44	38	27	22	26	43	
	Cooling	High	55	55	52	51	49	46	38	56		59	57	54	48	42	39	43	55	
		Low	51	51	46	45	43	37	33	51		61	56	53	45	39	39	42	53	
	Heating	High	58	57	53	52	50	46	38	57		62	55	55	49	43	39	36	55	
		Low	60	54	49	47	44	38	32	53		62	54	53	47	39	38	37	54	
018 PSC	Fan Only	High	59	57	54	54	53	50	42	59		55	55	55	49	43	39	29	54	
		Low	59	58	55	54	54	50	42	60		56	55	55	50	43	39	29	55	
	Cooling	High	60	57	54	54	54	50	43	59		61	57	58	50	44	41	43	57	
		Low	60	58	54	54	54	50	43	60		61	57	57	50	44	42	43	57	
	Heating	High	60	58	55	54	53	49	41	59		63	57	57	50	44	41	36	57	
		Low	61	58	55	54	53	49	41	60		61	57	57	51	46	41	37	57	
024 ECM	Fan Only	High	62	56	54	52	51	46	37	58		53	54	53	49	43	37	28	54	
		Low	56	50	47	46	43	36	31	51		47	49	48	44	33	27	26	48	
	Cooling	High	66	63	57	56	55	52	44	62		61	63	60	53	46	42	44	60	
		Low	61	62	51	49	47	41	34	57		60	62	59	50	40	36	42	58	
	Heating	High	66	62	59	57	55	51	43	63		62	61	59	55	48	43	40	59	
		Low	66	61	52	50	47	41	33	58		65	64	57	52	43	39	41	59	
024 PSC	Fan Only	High	72	65	63	62	60	58	51	68		62	61	59	55	49	46	36	60	
		Low	68	61	59	57	56	53	45	63		59	58	57	52	45	42	32	57	
	Cooling	High	74	66	63	62	61	59	52	68		65	65	61	56	49	46	45	62	
		Low	72	67	58	57	56	53	46	64		63	64	60	54	46	42	44	60	
	Heating	High	72	65	63	61	60	57	50	67		64	63	60	56	49	46	43	61	
		Low	71	64	60	57	56	53	45	64		65	63	60	55	47	43	40	60	
030 ECM	Fan Only	High	68	63	61	59	58	55	47	65		59	59	58	54	48	45	34	59	
		Low	59	53	50	49	47	41	33	55		49	51	50	46	37	32	27	50	
	Cooling	High	71	66	64	62	62	59	53	68		64	65	61	57	51	49	46	63	
		Low	65	61	56	54	53	49	41	60		59	63	60	52	44	40	43	59	
	Heating	High	71	67	65	63	61	59	52	69		62	63	62	58	52	50	44	62	
		Low	66	62	58	55	54	50	41	62		63	61	58	54	46	42	40	59	
030 PSC	Fan Only	High	74	71	67	67	66	64	58	73		65	70	63	60	53	51	42	65	
		Low	72	68	65	64	63	61	55	70		63	67	60	57	50	47	37	62	
	Cooling	High	75	74	67	68	67	65	60	74		67	73	63	61	53	52	49	67	
		Low	73	70	65	65	64	62	56	71		66	69	61	58	50	48	46	64	
	Heating	High	74	71	67	67	65	63	57	72		63	67	63	60	53	51	46	64	
		Low	72	68	64	64	62	60	53	70		65	65	61	58	50	47	43	62	
036 ECM	Fan Only	High	69	64	65	61	59	57	50	67		62	64	61	56	50	47	38	61	
		Low	59	53	56	51	48	44	35	57		54	56	53	48	40	35	26	53	
	Cooling	High	73	66	68	65	63	61	55	71		75	70	64	61	54	52	48	67	
		Low	70	60	61	57	56	53	46	64		75	64	60	55	48	44	43	63	
	Heating	High	71	66	68	65	62	60	54	70		70	67	64	60	54	51	48	65	
		Low	68	59	61	57	55	52	45	63		69	61	60	55	48	44	43	61	
036 PSC	Fan Only	High	72	67	69	66	64	62	56	72		68	68	63	59	53	51	42	65	
		Low	70	64	65	64	61	58	52	68		66	66	61	56	49	47	38	62	
	Cooling	High	75	67	68	66	64	62	56	71		77	69	64	60	53	51	48	67	
		Low	75	64	66	64	61	59	53	69		76	67	62	57	50	47	44	65	
	Heating	High	73	66	69	66	63	61	55	71		71	66	63	59	53	51	47	65	
		Low	69	64	66	64	60	58	52	68		70	64	63	56	50	47	44	63	

Model GCH – Unit With Sound Package, Sizes 042-070

Table 7: Sound Power Data for Model GCH with Sound Package Insulation – Sizes 042–070

Unit Size-Motor	Mode Speed		ARI-260-2012, 4.4.1 Sound Data, Sound Power (dB) re 1 pW									ARI-260-2012, 4.4.4 Sound Data, Sound Power (dB) re 1 pW								
			Ducted Discharge Octave Band Frequency, Hz									Free Inlet & Case Radiated Octave Band Frequency, Hz								
			125	250	500	1000	2000	4000	8000	dB “A” 1 pW		125	250	500	1000	2000	4000	8000	dB “A” 1 pW	
042 ECM	Fan Only	High	70	64	66	61	59	56	49	67		69	63	60	57	53	48	38	62	
		Low	63	57	59	54	51	46	38	60		62	56	53	51	45	38	28	55	
	Cooling	High	74	68	69	65	63	60	53	71		81	67	62	60	58	53	49	68	
		Low	69	62	64	57	56	52	44	65		81	63	58	56	51	45	47	65	
	Heating	High	75	67	69	65	62	59	51	71		77	64	63	60	58	53	49	67	
		Low	70	61	64	58	55	51	42	65		77	60	59	55	52	46	47	65	
042 PSC	Fan Only	High	75	69	70	67	64	62	55	72		70	67	62	59	55	52	42	65	
		Low	73	67	68	65	63	61	53	71		68	66	60	58	52	49	40	63	
	Cooling	High	76	70	70	67	65	62	55	73		75	68	61	60	56	52	47	66	
		Low	74	67	68	65	63	61	53	71		74	67	60	59	52	49	47	64	
	Heating	High	73	69	70	67	64	61	53	72		69	65	62	59	55	52	47	64	
		Low	71	67	67	65	62	60	52	70		68	63	60	58	52	49	46	63	
048 ECM	Fan Only	High	70	65	65	64	62	60	53	69		63	64	60	58	51	49	40	62	
		Low	60	56	56	53	51	47	37	58		53	55	53	49	40	36	27	53	
	Cooling	High	74	69	67	67	66	64	58	73		70	67	62	61	55	53	49	66	
		Low	67	62	61	59	58	55	47	65		68	65	59	56	49	47	45	62	
	Heating	High	74	70	68	68	66	64	58	73		68	69	63	61	56	54	49	66	
		Low	68	63	63	60	58	55	48	66		71	70	59	56	49	46	44	64	
048 PSC	Fan Only	High	75	71	69	70	68	66	60	75		68	70	66	62	56	54	47	68	
		Low	72	69	67	67	65	63	56	72		67	67	62	59	52	49	41	64	
	Cooling	High	80	71	69	70	68	66	60	75		72	73	64	63	56	54	49	68	
		Low	76	67	67	64	63	60	53	70		71	70	62	59	52	50	46	65	
	Heating	High	74	74	69	70	67	64	58	74		70	72	64	62	56	53	49	67	
		Low	71	70	65	64	61	58	51	69		71	69	61	59	53	50	46	65	
060 ECM	Fan Only	High	76	67	68	67	67	65	58	73		70	69	64	61	57	54	44	66	
		Low	66	57	59	58	57	52	44	63		61	60	56	53	47	41	31	58	
	Cooling	High	79	71	71	70	71	68	62	77		77	73	66	64	59	58	52	70	
		Low	74	64	65	64	64	61	53	70		75	67	62	59	54	50	47	65	
	Heating	High	79	72	71	70	70	68	61	76		73	73	67	64	60	58	53	70	
		Low	73	65	65	64	63	60	53	70		70	72	63	60	55	52	50	67	
060 PSC	Fan Only	High	80	72	72	71	71	69	63	77		72	73	67	64	59	57	47	69	
		Low	77	69	69	68	69	66	59	74		71	70	64	62	57	53	44	67	
	Cooling	High	80	73	72	71	71	69	63	77		76	73	67	64	60	58	52	70	
		Low	78	70	69	68	69	66	59	75		75	71	64	62	57	54	50	68	
	Heating	High	80	73	71	70	70	68	62	76		74	76	67	64	60	58	53	71	
		Low	77	70	68	68	67	64	57	74		73	74	66	62	58	54	50	69	
070 ECM	Fan Only	High	70	65	65	65	66	64	58	71		66	66	62	59	55	53	49	65	
		Low	58	53	54	54	53	49	41	59		56	56	53	50	44	39	40	55	
	Cooling	High	75	68	68	68	69	68	62	75		73	71	64	63	57	57	52	68	
		Low	71	60	61	60	62	59	53	67		71	68	60	56	51	48	46	63	
	Heating	High	74	68	67	68	68	67	61	74		74	75	65	63	58	58	53	70	
		Low	71	64	61	61	61	59	52	67		74	73	62	57	53	50	48	67	
070 PSC	Fan Only	High	77	71	70	71	71	70	65	77		71	74	67	64	59	59	51	70	
		Low	74	67	66	67	66	64	58	72		69	69	64	61	56	53	46	66	
	Cooling	High	77	72	71	71	71	71	65	77		74	75	67	65	59	59	55	71	
		Low	73	66	68	66	67	64	58	72		73	72	65	61	56	53	50	68	
	Heating	High	74	69	68	68	68	66	60	74		75	77	68	63	59	59	55	71	
		Low	73	67	67	66	66	63	57	72		74	75	65	60	56	54	51	69	

Model GCV – Standard Unit, Sizes 007-015

Table 8: Sound Power Data for Model GCV with Standard Insulation – Sizes 007–015

Unit Size-Motor	Mode Speed		ARI-260-2012, 4.5.1 Sound Data, Sound Power (dB) re 1 pW								ARI-260-2012, 4.5.3 Sound Data, Sound Power (dB) re 1 pW							
			Ducted Discharge Octave Band Frequency, Hz								Free Inlet & Case Radiated Octave Band Frequency, Hz							
			125	250	500	1000	2000	4000	8000	dB "A" 1 pW	125	250	500	1000	2000	4000	8000	dB "A" 1 pW
007 ECM	Fan Only	High	38	34	32	30	30	24	24	35	40	36	35	34	31	27	26	37
		Low	32	27	27	24	24	19	22	29	35	32	31	30	27	23	23	33
	Cooling	High	42	38	36	35	33	30	28	39	44	40	38	37	34	31	28	41
		Low	38	35	32	30	30	25	24	35	43	38	36	35	32	29	26	39
	Heating	High	41	38	37	35	33	30	27	39	43	40	38	37	34	31	28	41
		Low	38	34	33	31	29	26	23	35	42	38	37	35	33	30	26	40
007 PSC	Fan Only		58	53	51	47	44	39	35	53	61	55	53	52	45	40	35	56
	Cooling		59	54	50	47	44	40	35	53	62	59	56	53	48	46	39	59
	Heating		58	53	51	48	43	39	35	53	63	58	55	53	48	44	39	59
009 ECM	Fan Only	High	46	41	39	36	37	29	29	42	48	44	42	42	38	32	31	45
		Low	38	33	33	29	29	23	26	35	43	38	38	36	33	28	28	40
	Cooling	High	51	46	44	42	40	37	34	47	53	49	46	45	41	38	34	49
		Low	46	42	39	36	36	30	29	42	52	46	44	42	39	35	32	47
	Heating	High	50	46	45	43	40	36	33	47	52	48	46	45	41	38	33	49
		Low	46	42	40	37	35	31	28	42	51	46	45	42	40	36	31	48
009 PSC	Fan Only		56	51	50	46	43	38	35	52	58	53	52	50	43	38	34	54
	Cooling		57	53	51	46	44	39	35	53	61	58	56	52	47	46	38	58
	Heating		57	51	51	47	43	39	35	53	60	56	54	51	46	43	38	59
012 ECM	Fan Only	High	55	49	48	44	45	35	35	51	58	53	51	50	46	39	38	54
		Low	46	40	39	35	35	28	32	42	52	46	46	43	39	34	34	48
	Cooling	High	61	56	53	51	49	44	41	57	64	59	56	55	50	46	41	60
		Low	56	51	47	44	44	37	35	51	63	56	53	51	47	43	38	57
	Heating	High	60	55	54	52	48	44	39	57	63	58	55	55	50	46	40	60
		Low	56	50	48	45	42	37	34	51	62	56	54	51	48	44	38	58
012 PSC	Fan Only		60	56	55	52	50	46	42	58	62	58	56	55	49	45	40	59
	Cooling		61	56	54	52	49	45	42	57	63	59	57	55	50	47	40	60
	Heating		60	55	55	52	49	44	40	57	62	58	56	55	50	46	41	60
015 ECM	Fan Only	High	50	46	37	41	38	32	29	45	49	47	46	43	38	31	28	48
		Low	50	46	36	38	34	28	30	43	50	46	46	42	36	28	29	47
	Cooling	High	56	52	44	45	44	39	32	51	58	54	52	49	46	39	35	54
		Low	51	48	39	40	38	34	29	46	54	50	47	45	42	36	33	50
	Heating	High	59	53	44	47	45	40	33	52	62	56	57	51	48	43	42	58
		Low	55	48	40	42	40	36	30	47	58	52	53	48	45	41	40	54
015 PSC	Fan Only		61	56	46	49	47	40	33	54	60	57	55	53	49	43	34	58
	Cooling		61	55	46	48	46	40	34	53	62	57	55	54	50	44	37	58
	Heating		62	56	46	49	46	40	33	54	64	58	58	54	51	45	41	60

Notes: 1. Cooling and heating conditions per ISO Standard 13256-1 water-loop rating conditions for 1-inch filter.
 2. Data based on sound measurements made in a reverberant room on representative units, 0.1" static pressure for constant cfm EC motors and nominal cfm for other motors.

Model GCV – Standard Unit, Sizes 019-036

Table 9: Sound Power Data for Model GCV with Standard Insulation – Sizes 019–036

Unit Size-Motor	Mode Speed		ARI-260-2012, 4.5.1 Sound Data, Sound Power (dB) re 1 pW								ARI-260-2012, 4.5.3 Sound Data, Sound Power (dB) re 1 pW							
			Ducted Discharge Octave Band Frequency, Hz								Free Inlet & Case Radiated Octave Band Frequency, Hz							
			125	250	500	1000	2000	4000	8000	dB “A” 1 pW	125	250	500	1000	2000	4000	8000	dB “A” 1 pW
019 ECM	Fan Only	High	53	50	40	43	41	34	31	48	52	50	50	46	41	33	29	51
		Low	50	46	36	38	34	28	30	43	50	46	46	42	36	28	29	47
	Cooling	High	58	54	45	47	46	41	34	53	58	56	53	51	47	41	35	56
		Low	54	51	42	43	41	37	31	49	58	53	50	48	45	39	35	53
	Heating	High	60	55	46	50	48	43	35	55	64	58	56	52	49	44	42	58
		Low	59	51	43	45	42	38	32	50	61	55	57	51	48	44	42	57
019 PSC	Fan Only		63	59	49	53	52	47	39	58	62	59	57	55	53	48	37	60
	Cooling		64	59	50	53	52	47	39	58	64	59	57	56	53	48	41	61
	Heating		64	58	48	52	51	45	37	57	66	60	59	55	53	47	41	61
024 ECM	Fan Only	High	51	50	46	49	44	38	33	52	50	51	53	53	49	42	35	56
		Low	48	46	42	44	39	31	29	47	47	47	48	49	43	34	30	51
	Cooling	High	60	55	53	55	52	47	39	59	63	56	58	59	55	49	42	62
		Low	56	50	46	48	44	38	33	52	62	53	55	54	50	43	35	58
	Heating	High	60	55	53	55	52	47	39	59	63	56	58	59	55	49	42	62
		Low	56	50	46	48	44	38	33	52	62	53	55	54	50	43	35	58
024 PSC	Fan Only		61	59	53	57	53	47	43	60	58	58	56	59	55	49	44	62
	Cooling		63	59	56	59	55	51	42	62	62	59	58	60	57	52	43	63
	Heating		63	59	56	59	55	51	42	62	62	59	58	60	57	52	43	63
030 ECM	Fan Only	High	54	53	50	53	49	45	37	56	53	54	57	58	55	49	40	61
		Low	50	49	45	47	42	36	32	50	50	50	51	52	47	40	33	55
	Cooling	High	62	58	54	58	56	53	46	62	65	60	62	63	61	56	49	67
		Low	60	54	50	53	50	45	37	56	63	56	57	57	54	48	40	61
	Heating	High	62	58	54	58	56	53	46	62	65	60	62	63	61	56	49	67
		Low	60	54	50	53	50	45	37	56	63	56	57	57	54	48	40	61
030 PSC	Fan Only		64	63	57	62	59	56	49	66	62	62	61	64	62	58	50	67
	Cooling		65	62	58	63	60	57	50	66	63	62	62	64	62	59	51	68
	Heating		65	62	58	63	60	57	50	66	63	62	62	64	62	59	51	68
036 ECM	Fan Only	High	58	54	53	55	53	50	41	59	59	58	61	60	58	54	45	65
		Low	54	50	48	49	46	41	35	53	58	54	56	55	51	47	37	59
	Cooling	High	65	61	59	61	61	58	52	66	65	63	65	66	64	62	54	70
		Low	60	55	54	55	54	51	43	60	62	60	61	60	58	54	45	65
	Heating	High	65	62	59	61	60	58	50	66	66	63	65	66	65	62	55	71
		Low	60	56	55	56	54	50	41	60	61	59	62	61	58	55	46	66
036 PSC	Fan Only		65	62	59	61	60	57	50	66	64	63	64	64	62	60	52	69
	Cooling		66	62	60	61	61	59	52	67	65	63	64	64	62	59	51	69
	Heating		65	62	59	60	58	55	48	65	65	63	64	64	62	59	52	68

Notes: 1. Cooling and heating conditions per ISO Standard 13256-1 water-loop rating conditions for 1-inch filter.
2. Data based on sound measurements made in a reverberant room on representative units, 0.1" static pressure for constant cfm EC motors and nominal cfm for other motors.

Model GCV – Standard Unit, Sizes 042-070

Table 10: Sound Power Data for Model GCV with Standard Insulation – Sizes 042–070

Unit Size-Motor	Mode Speed		ARI-260-2012, 4.5.1 Sound Data, Sound Power (dB) re 1 pW								ARI-260-2012, 4.5.3 Sound Data, Sound Power (dB) re 1 pW							
			Ducted Discharge Octave Band Frequency, Hz								Free Inlet & Case Radiated Octave Band Frequency, Hz							
			125	250	500	1000	2000	4000	8000	dB “A” 1 pW	125	250	500	1000	2000	4000	8000	dB “A” 1 pW
042 ECM	Fan Only	High	60	56	53	55	53	50	41	60	55	55	60	61	58	53	43	64
		Low	56	52	47	49	45	39	33	52	51	51	54	55	50	42	35	58
	Cooling	High	67	63	58	61	60	57	51	66	63	61	65	66	65	61	53	70
		Low	61	57	53	55	53	49	41	59	58	58	61	61	58	52	43	64
	Heating	High	67	63	58	61	59	57	50	66	66	64	67	69	68	64	58	73
		Low	59	56	55	56	52	48	41	60	58	59	62	61	58	53	46	65
042 PSC	Fan Only		67	64	59	60	58	54	46	65	65	62	65	65	63	59	50	69
	Cooling		66	64	60	60	58	54	46	65	65	64	67	65	63	59	52	70
	Heating		65	63	61	60	56	52	44	64	66	63	66	65	63	59	53	70
048 ECM	Fan Only	High	62	54	53	57	53	51	44	60	61	58	56	55	52	47	38	60
		Low	58	48	47	51	47	44	36	54	57	53	51	50	47	40	31	55
	Cooling	High	70	60	60	63	60	59	53	68	71	64	63	60	59	54	45	66
		Low	64	54	54	57	54	52	45	61	68	60	60	56	54	48	39	62
	Heating	High	69	61	60	64	60	58	51	67	72	66	64	61	59	55	48	67
		Low	64	55	54	58	54	51	44	61	69	63	61	57	55	50	43	63
048 PSC	Fan Only		66	60	58	62	58	57	52	65	66	62	58	58	57	54	47	63
	Cooling		67	59	58	62	58	57	52	65	66	62	59	58	57	53	44	63
	Heating		65	60	57	62	57	56	50	64	67	62	59	58	57	53	46	63
060 ECM	Fan Only	High	67	59	59	62	59	59	52	67	66	62	60	59	58	54	45	65
		Low	61	52	52	55	51	49	42	59	60	56	55	53	51	45	36	58
	Cooling	High	75	66	65	69	66	66	60	73	74	69	66	65	64	60	51	71
		Low	69	59	59	62	59	58	51	66	70	63	62	59	58	53	43	65
	Heating	High	74	66	64	69	65	64	58	73	74	69	66	65	64	61	53	71
		Low	68	59	58	62	58	56	49	66	70	65	63	60	58	54	47	66
060 PSC	Fan Only		74	66	64	69	65	64	58	72	73	69	65	65	63	60	53	70
	Cooling		74	66	64	69	65	64	58	72	73	69	66	65	63	59	50	70
	Heating		73	66	64	68	63	62	55	71	75	69	66	65	63	60	52	70
070 ECM	Fan Only	High	67	61	60	63	61	60	53	68	70	65	61	60	59	54	45	66
		Low	60	53	51	56	52	49	42	59	64	58	55	53	50	45	36	59
	Cooling	High	74	68	65	71	67	67	61	75	78	72	66	66	64	60	51	72
		Low	69	60	60	63	60	59	52	67	71	65	62	60	57	52	43	66
	Heating	High	73	68	65	71	66	65	59	74	78	72	67	66	64	61	53	72
		Low	68	61	60	63	60	58	51	67	74	66	64	60	58	53	45	66
070 PSC	Fan Only		77	72	67	72	69	68	63	76	76	71	65	67	65	62	54	72
	Cooling		77	70	67	72	69	68	63	76	77	72	67	68	66	62	53	73
	Heating		75	70	65	71	66	64	58	74	79	73	67	68	66	62	55	73

Notes: 1. Cooling and heating conditions per ISO Standard 13256-1 water-loop rating conditions for 1-inch filter.
2. Data based on sound measurements made in a reverberant room on representative units, 0.1" static pressure for constant cfm EC motors and nominal cfm for other motors.

Model GCV – Unit With Sound Package, Sizes 007-015

Table 11: Sound Power Data for Model GCV with Sound Package Insulation – Sizes 007–015

Unit Size-Motor	Mode Speed		ARI-260-2012, 4.5.1 Sound Data, Sound Power (dB) re 1 pW								ARI-260-2012, 4.5.3 Sound Data, Sound Power (dB) re 1 pW							
			Ducted Discharge Octave Band Frequency, Hz								Free Inlet & Case Radiated Octave Band Frequency, Hz							
			125	250	500	1000	2000	4000	8000	dB "A" 1 pW	125	250	500	1000	2000	4000	8000	dB "A" 1 pW
007 ECM	Fan Only	High	39	34	32	30	31	24	24	35	40	36	34	33	30	25	24	36
		Low	33	28	27	24	24	19	22	29	35	31	30	28	26	21	22	32
	Cooling	High	43	39	36	35	33	30	28	39	44	40	37	36	33	29	27	40
		Low	40	35	32	30	30	25	24	35	43	38	35	33	31	27	25	38
	Heating	High	43	38	37	36	33	30	27	39	43	39	37	36	33	29	26	40
		Low	40	35	33	31	29	25	23	35	42	38	36	34	31	28	24	39
007 PSC	Fan Only		60	53	51	47	44	39	35	53	61	55	52	51	44	38	34	55
	Cooling		60	55	50	47	44	40	35	53	62	59	55	52	46	44	37	58
	Heating		60	53	51	48	44	39	34	53	63	57	54	52	46	42	37	58
009 ECM	Fan Only	High	47	41	39	36	37	29	29	42	48	43	41	40	36	30	30	44
		Low	40	34	33	29	29	23	26	35	43	38	37	34	31	26	27	39
	Cooling	High	52	47	44	42	40	37	34	47	53	49	45	44	40	36	33	48
		Low	48	43	39	36	37	30	29	42	52	46	43	41	38	33	30	46
	Heating	High	51	46	45	43	40	36	32	47	52	48	45	44	40	36	32	48
		Low	48	42	40	37	35	31	28	42	51	46	44	41	38	34	30	47
009 PSC	Fan Only		57	52	50	46	43	38	35	52	58	53	51	49	42	36	33	53
	Cooling		59	53	51	47	44	39	35	53	61	58	55	50	45	44	37	57
	Heating		58	52	51	47	43	39	35	53	60	55	53	50	45	41	37	58
012 ECM	Fan Only	High	57	50	48	44	45	35	35	51	58	52	50	49	44	37	37	53
		Low	48	41	39	35	35	28	32	42	52	46	45	42	38	32	33	47
	Cooling	High	63	57	53	51	49	44	41	57	64	59	55	53	49	44	40	59
		Low	58	52	47	44	44	37	35	51	63	56	52	50	46	41	37	56
	Heating	High	62	56	54	52	49	43	39	57	63	58	54	53	48	44	39	59
		Low	58	51	48	45	42	37	34	51	62	55	53	50	47	42	36	57
012 PSC	Fan Only		62	57	55	52	50	46	42	58	62	58	55	54	48	43	38	58
	Cooling		62	57	54	52	50	45	41	57	63	59	56	54	48	45	39	59
	Heating		62	55	55	52	49	44	40	57	62	58	55	54	48	44	39	59
015 ECM	Fan Only	High	51	47	37	41	38	32	29	45	49	46	45	42	37	29	26	47
		Low	51	47	36	38	35	28	30	43	50	46	45	41	34	26	28	46
	Cooling	High	57	53	44	45	44	39	32	51	58	54	51	48	44	37	34	53
		Low	52	48	39	40	39	34	29	46	54	50	46	44	41	34	31	49
	Heating	High	60	54	44	47	45	40	33	52	62	56	56	50	47	41	41	57
		Low	56	49	40	42	40	36	29	47	58	51	52	46	44	39	38	53
015 PSC	Fan Only		62	56	46	49	47	40	33	54	60	56	54	51	48	41	33	57
	Cooling		62	55	46	48	47	40	33	53	62	57	54	52	49	42	36	57
	Heating		63	57	46	49	46	40	33	54	64	58	57	52	49	43	40	59

Notes: 1. Cooling and heating conditions per ISO Standard 13256-1 water-loop rating conditions for 2-inch filter.
2. Data based on sound measurements made in a reverberant room on representative units, 0.1" static pressure.

Model GCV – Unit With Sound Package, Sizes 019-036

Table 12: Sound Power Data for Model GCV with Sound Package Insulation – Sizes 019–036

Unit Size-Motor	Mode Speed		ARI-260-2012, 4.5.1 Sound Data, Sound Power (dB) re 1 pW									ARI-260-2012, 4.5.3 Sound Data, Sound Power (dB) re 1 pW							
			Ducted Discharge Octave Band Frequency, Hz									Free Inlet & Case Radiated Octave Band Frequency, Hz							
			125	250	500	1000	2000	4000	8000	dB “A” 1 pW		125	250	500	1000	2000	4000	8000	dB “A” 1 pW
019 ECM	Fan Only	High	54	50	40	43	41	34	31	48		52	49	48	45	40	31	28	50
		Low	51	47	36	38	35	28	30	43		50	46	45	41	34	26	28	46
	Cooling	High	59	54	45	47	47	41	34	53		58	55	52	49	46	39	34	55
		Low	56	51	42	43	41	37	31	49		58	53	49	47	44	37	34	52
	Heating	High	62	55	46	50	48	43	34	55		64	58	55	51	48	42	40	57
		Low	60	52	43	45	42	38	31	50		61	55	56	49	47	42	41	56
019 PSC	Fan Only		65	59	49	53	52	47	39	58		62	58	56	54	52	45	36	59
	Cooling		66	59	50	53	52	47	39	58		64	59	56	54	52	46	39	60
	Heating		66	59	48	53	51	45	37	57		66	60	58	54	52	45	40	60
024 ECM	Fan Only	High	52	50	46	48	43	37	32	51		50	50	52	52	47	40	33	55
		Low	49	47	42	44	38	30	27	47		47	47	48	48	42	32	28	50
	Cooling	High	61	56	53	55	51	47	38	58		63	56	58	57	54	48	40	61
		Low	57	51	47	48	44	37	31	51		61	52	54	53	48	41	34	56
	Heating	High	61	56	53	55	51	47	38	58		63	56	58	57	54	48	40	61
		Low	57	51	47	48	44	37	31	51		61	52	54	53	48	41	34	56
024 PSC	Fan Only		61	59	53	57	52	47	42	60		58	57	56	57	54	48	42	61
	Cooling		64	59	56	59	55	50	41	62		61	58	58	59	55	50	42	62
	Heating		64	59	56	59	55	50	41	62		61	58	58	59	55	50	42	62
030 ECM	Fan Only	High	55	53	50	53	49	44	36	56		53	54	56	57	53	48	38	60
		Low	51	49	45	47	42	35	30	50		49	49	51	51	46	38	32	54
	Cooling	High	62	59	55	58	55	52	44	62		64	59	61	62	60	55	48	66
		Low	60	54	51	53	49	44	36	56		62	55	56	56	52	46	39	60
	Heating	High	62	59	55	58	55	52	44	62		64	59	61	62	60	55	48	66
		Low	60	54	51	53	49	44	36	56		62	55	56	56	52	46	39	60
030 PSC	Fan Only		65	63	57	62	59	55	48	66		61	61	60	62	61	57	49	66
	Cooling		66	62	58	63	59	56	48	66		63	61	61	63	61	57	49	67
	Heating		66	62	58	63	59	56	48	66		63	61	61	63	61	57	49	67
036 ECM	Fan Only	High	58	55	54	54	52	49	40	59		58	57	60	59	56	53	44	64
		Low	54	51	48	49	45	41	34	53		57	53	55	54	50	45	35	58
	Cooling	High	65	61	59	61	60	58	51	66		64	62	65	64	63	60	53	69
		Low	61	56	54	55	53	50	41	60		61	59	61	59	56	53	44	64
	Heating	High	66	62	59	61	60	57	49	66		65	63	65	65	63	61	54	70
		Low	60	56	55	56	53	49	40	60		61	59	62	60	57	54	45	65
036 PSC	Fan Only		66	62	59	61	59	57	49	66		63	62	63	63	61	58	51	68
	Cooling		66	62	60	61	60	58	51	66		64	62	63	63	61	57	49	67
	Heating		66	62	59	60	58	55	46	65		65	62	63	63	60	58	50	67

Notes: 1. Cooling and heating conditions per ISO Standard 13256-1 water-loop rating conditions for 1-inch filter.

2. Data based on sound measurements made in a reverberant room on representative units, 0.1" static pressure for constant cfm EC motors and nominal cfm for other motors.

Model GCV – Unit With Sound Package

Table 13: Sound Power Data for Model GCV with Sound Package Insulation – Sizes 042–070

Unit Size-Motor	Mode Speed		ARI-260-2012, 4.5.1 Sound Data, Sound Power (dB) re 1 pW								ARI-260-2012, 4.5.3 Sound Data, Sound Power (dB) re 1 pW							
			Ducted Discharge Octave Band Frequency, Hz								Free Inlet & Case Radiated Octave Band Frequency, Hz							
			125	250	500	1000	2000	4000	8000	dB “A” 1 pW	125	250	500	1000	2000	4000	8000	dB “A” 1 pW
042 ECM	Fan Only	High	61	57	53	55	53	49	40	59	54	55	59	60	57	51	42	63
		Low	56	52	47	49	44	38	32	52	51	50	54	54	48	41	33	57
	Cooling	High	68	63	58	61	59	57	50	66	63	60	64	65	63	59	51	69
		Low	62	57	53	55	52	48	40	59	57	58	61	60	56	51	41	63
	Heating	High	67	63	58	61	59	56	49	65	66	63	66	68	66	63	57	72
		Low	60	57	56	55	52	48	40	60	57	58	61	60	57	52	44	64
042 PSC	Fan Only		67	64	60	60	57	53	45	65	64	61	65	64	62	57	48	68
	Cooling		67	65	61	60	57	53	45	65	65	63	66	64	62	58	50	69
	Heating		65	64	61	60	56	51	43	64	65	62	66	64	62	58	51	69
048 ECM	Fan Only	High	63	54	53	57	52	50	43	60	61	57	55	54	51	46	36	59
		Low	58	49	48	51	46	43	35	54	57	52	51	49	45	39	29	53
	Cooling	High	71	60	60	63	60	58	52	67	70	64	63	59	57	53	44	65
		Low	65	54	55	57	54	52	44	61	67	59	60	55	53	47	38	61
	Heating	High	70	61	60	64	59	57	50	67	71	65	63	60	58	54	47	66
		Low	64	55	55	57	53	50	43	61	69	62	61	55	54	48	42	62
048 PSC	Fan Only		67	60	58	62	58	57	51	65	65	61	57	57	55	52	45	62
	Cooling		67	60	58	62	58	57	51	65	66	61	58	57	55	51	43	62
	Heating		66	60	58	61	56	55	48	64	67	62	58	57	55	52	44	62
060 ECM	Fan Only	High	68	59	59	63	59	57	50	66	67	62	60	58	57	53	44	64
		Low	63	53	53	56	52	48	40	59	61	56	54	52	49	44	35	57
	Cooling	High	75	66	65	69	65	65	59	73	73	68	65	64	62	59	50	70
		Low	69	59	59	62	58	57	50	66	68	63	62	58	56	51	42	64
	Heating	High	74	66	64	69	64	63	57	72	73	69	66	64	62	59	51	70
		Low	69	60	59	62	58	56	49	66	70	64	63	58	57	53	45	65
060 PSC	Fan Only		74	67	65	69	64	63	57	72	73	68	64	64	62	58	50	69
	Cooling		75	66	65	68	64	63	57	72	73	68	65	64	62	57	48	69
	Heating		73	67	64	68	63	61	54	71	73	68	65	63	61	58	50	69
070 ECM	Fan Only	High	68	61	60	63	60	59	52	67	70	64	61	59	57	53	44	65
		Low	60	54	51	56	51	49	41	59	64	57	54	52	49	43	34	58
	Cooling	High	75	68	66	71	67	66	60	74	77	71	66	65	63	58	49	71
		Low	70	61	60	63	60	58	51	67	71	65	62	59	56	51	41	65
	Heating	High	74	68	65	71	66	64	58	74	78	71	66	65	63	59	52	71
		Low	68	62	60	63	59	57	50	67	74	65	63	59	57	52	44	65
070 PSC	Fan Only		78	72	67	72	68	67	62	76	75	71	65	66	64	60	53	71
	Cooling		78	71	67	72	68	67	61	76	77	72	66	67	64	60	51	72
	Heating		76	70	65	71	66	63	57	74	79	73	67	67	64	61	53	72

Notes: 1. Cooling and heating conditions per ISO Standard 13256-1 water-loop rating conditions for 1-inch filter.
2. Data based on sound measurements made in a reverberant room on representative units, 0.1" static pressure for constant cfm EC motors and nominal cfm for other motors.

This page left intentionally blank



Daikin Applied Training and Development

Now that you have made an investment in modern, efficient Daikin equipment, its care should be a high priority. For training information on all Daikin HVAC products, please visit us at www.DaikinApplied.com and click on Training, or call 540-248-9646 and ask for the Training Department.

Warranty

All Daikin equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local Daikin Applied representative for warranty details. Refer to Form 933-430285Y. To find your local Daikin Applied representative, go to www.DaikinApplied.com.

Aftermarket Services

To find your local parts office, visit www.DaikinApplied.com or call 800-37PARTS (800-377-2787). To find your local service office, visit www.DaikinApplied.com or call 800-432-1342.

This document contains the most current product information as of this printing. For the most up-to-date product information, please go to www.DaikinApplied.com.

Products manufactured in an ISO Certified Facility.