

Choices

INFORMATION TO HELP YOU ACHIEVE THE HIGHEST
DEGREE OF INDOOR COMFORT FOR YOUR HOME



INDOOR COMFORT ALL YEAR

Goodman
Air Conditioning & Heating

Heating & Air Conditioning
Amana

To many homeowners, the term 'heat pump' is a bit confusing. Another way to define a heat pump is to think of it as a central air conditioning unit that can heat your home too.

Here is a simplified explanation of how a heat pump operates. When the outdoor temperature soars, a heat pump functions just like a central air conditioner. It pumps low pressure refrigerant to an evaporator coil. Humid warm air passes over this coil typically sent from an air handler or gas furnace (depending on your home's type of heating and cooling system). As the warm, humid air passes over the cold evaporator coil, humidity is removed and the air is chilled prior to the air being sent to the air supply.

As outdoor temperatures fall and you want heating comfort for your home, the heat pump automatically reverses the refrigerant cycle. So instead of warm air passing over the cold evaporator coil, in the heating cycle, cold air passes over a warm evaporator coil and is heated before it is sent to your home's air registers.

Compared to a central air conditioner that gets to take a 'vacation' during the heating season, a heat pump works to deliver indoor comfort all year. And since it works nearly every day of the year, when homeowners choose a new heat pump, many look for features that offer enhanced performance and long-term reliability.

DUAL FUEL

Heat pumps are generally considered a good option in milder climates due to their ability to provide very efficient operation in above freezing ambient temperatures and gas furnaces are considered the most efficient option when outdoor temperature regularly dips below freezing. A heat pump will generally provide more cost effective operation than even your most efficient gas furnaces above 45°F.

Dual fuel operation optimizes the efficiencies of both a heat pump and a gas furnace by combining them into one system. A standard gas/electric system utilizes a gas furnace inside and an air conditioner outside. The only difference with a dual fuel system is a heat pump is utilized as the outdoor unit. With the installation of a specialized thermostat and an outdoor sensor you can enjoy optimum efficiency regardless of what Mother Nature may throw at you. And our 16 and 18 SEER products incorporating the ComfortNet™ communicating control system make wiring and setup of a dual fuel system easier than installing most standard efficiency, straight cooling systems while including advanced diagnostic capabilities.

ENERGY EFFICIENCY RATINGS

How much energy (electricity) is used to provide cooling and heating operation by heat pumps is measured two ways. Compared to standard efficiency heat pumps, high efficiency heat pumps use less energy to heat and cool your home which can result in lower utility bills.

Two basic ratings are provided to help you determine the energy efficiency of a heat pump.

SEER – Seasonal Energy Efficiency Rating is the term used to identify the air-cooling efficiency rating of a heat pump. The higher the rating number the more efficient it is designed to operate.

HSPF – Heating Season Performance Factor identifies the air-heating efficiency of a heat pump. The higher the rating number the more energy efficient the heat pump is designed to operate.

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THE RIGHT CHOICE

After you have reviewed the information contained in this publication, you should be more informed about the features and benefits that heat pumps can deliver for your home's indoor comfort. For a quick reference, we've included a comprehensive feature and warranty comparison of Goodman® and Amana® brand heat pumps.

www.goodmanmfg.com



MODEL	DSZC18	DSZC16	SSZ16	SSZ14	GSZ13
10-Year Unit Replacement Compressor Limited Warranty*	●	●			
10-Year Parts Limited Warranty*	●	●	●	●	●
Lifetime Compressor Limited Warranty*	●	●	●	●	
	●	●	●	●	●
 Compatible	●	●			
SEER	Up to 18	Up to 16	Up to 16	Up to 15	13
HSPF	Up to 9.5	Up to 9.5	Up to 9.5	Up to 8.5	Up to 8.0
Compressor Type	Two-Stage High-Efficiency Scroll	Two-Stage High-Efficiency Scroll	High-Efficiency Scroll	High-Efficiency Scroll	Energy-Efficient Scroll
SmartShift™ Defrost Technology	●	●	●	●	●
High-Capacity Muffler	●	●	●	●	●
Factory-Installed Accumulator	●	●	●	●	●
Crankcase Heater	●	●	●	●	●
Compressor Sound Blanket	High Density	High Density	High Density	High Density	
Factory-Installed Filter Drier	●	●	●	●	●

*Complete warranty details available from your local dealer or at www.goodmanmfg.com. To receive the 10-Year Unit Replacement Compressor Limited Warranty, Lifetime Heat Compressor Limited Warranty (good for as long as you own your home) and 10-Year Parts Limited Warranty, online registration must be completed within 60 days of installation. Online registration is not required in California or Quebec.



MODEL	ASZC18	ASZC16	ASZ14	ASZ13
Lifetime Unit Replacement Limited Warranty*	●	●	●	
10-Year Parts Limited Warranty*	●	●	●	●
	●	●	●	●
 Compatible	●	●		
SEER	Up to 18	Up to 16	Up to 15	13
HSPF	Up to 9.50	Up to 9.75	Up to 9.00	Up to 8.50
Compressor Type	Two-Stage High-Efficiency Scroll	Two-Stage High-Efficiency Scroll	High-Efficiency Scroll	Energy-Efficient Scroll
SmartShift™ Defrost Technology	●	●	●	●
High-Capacity Muffler	●	●	●	●
Factory-Installed Accumulator	●	●	●	●
Crankcase Heater	●	●	●	●
Compressor Sound Blanket	High-Density	High-Density	High-Density	
Factory-Installed Filter Drier	●	●	●	●

*Complete warranty details available from your local dealer or at www.amana-hac.com. To receive the Lifetime Unit Replacement Limited Warranty (good for as long as you own your home) and 10-Year Parts Limited Warranty, online registration must be completed within 60 days of installation. Online registration is not required in California or Quebec.

www.amana-hac.com

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PERFORMANCE FEATURES

If the heat pump system in your home is the primary source for heating and cooling your home, you may want to choose one that offers performance and reliability features. Several important factors include:

- ① **COMPRESSOR** – The compressor is often referred to as the heart of a heat pump. This device pumps and compresses the refrigerant that provides the heating and cooling benefits of a heat pump. All Amana® brand units feature scroll compressors offering lower sound ratings compared to reciprocating compressors. Scroll compressors also contain up to 70% fewer moving parts. Goodman® brand models utilize a mix of scroll and reciprocating compressors optimized for the application.
- ② **FILTER DRIER** – A factory-installed filter drier traps moisture and other contaminants in the liquid refrigerant that could be detrimental to the function and longevity of the heat pump and is a standard feature on all Goodman and Amana brand products.
- ③ **CRANKCASE HEATER** – The factory-installed crankcase heater is wrapped around the base of the compressor and provides multiple functions. When the heat pump is shut down in colder ambient conditions, the crankcase heater reduces liquid refrigerant migration in the compressor shell by keeping the refrigerant at a temperature higher than the coldest part of the refrigerant system. System oil will generally migrate to the warmest part of the refrigerant system. By keeping the compressor warm the crankcase heater helps to keep oil in the compressor where it is needed. Not only does this protect the compressor but noise reduction is achieved by preventing liquid refrigerant accumulation in the compressor shell.
- ④ **ACCUMULATOR** – Designed to protect the heat pump compressor from the damage of liquid refrigerant flood back conditions, an accumulator stores excess liquid refrigerant and only allows refrigerant vapor to enter the compressor. Basically the accumulator acts as a storage vessel. By storing and converting outlet refrigerant to a vapor state the accumulator protects against long term damage to the compressor commonly called 'slugging'.





- ⑤ **DISCHARGE MUFFLER** – Similar to the muffler on the exhaust system of a car, the discharge muffler on a heat pump reduces transient conditions that cause vibration affecting the operational noise of a heat pump. A discharge muffler also helps to minimize the pulsations occurring between the cooling and heating modes of a heat pump. Mufflers on Goodman and Amana brand heat pumps have been up-sized to minimize noise caused by higher operating pressures associated with R-410A refrigerant.
- ⑥ **LOW PRESSURE SWITCH** – When the refrigerant charge or pressure in a heat pump system is low, this switch activates and stops the operation of the heat pump to minimize potential damage to the compressor. A heat pump system that is low on refrigerant will not provide adequate heating or cooling. Further, low or loss of pressure can cause freezing of the condenser coil which drastically hinders the performance of a heat pump. This silent guard stands ready to operate only when needed to help protect the heat pump's compressor from damage.
- ⑦ **COMPRESSOR SOUND BLANKET** – The sound blanket insulates against the normal operating sound of the compressor. But not all sound blankets are created equal, unless it's constructed of high-density, thick foam and other materials, it may not provide the same level of sound insulation.
- ⑧ **SMARTSHIFT™ DEFROST TRANSITION CONTROL** – This feature helps to increase compressor reliability and reduces the noise level during heat pump systems defrost cycles. When outdoor temperatures fall below freezing and the heat pump is forced to initiate a defrost cycle, SmartShift simply turns off the compressor for 30 seconds allowing the system pressure to equalize and then it restarts the compressor. This seamless operation is triggered automatically eliminating unwanted noise caused by heat pump defrost changeover cycles.
- ⑨ **R-410A REFRIGERANT** – This refrigerant does not contain chlorine. Introduced in 1995, R-410A refrigerant has helped to increase the durability and reliability of compressors.

ADDITIONAL INFORMATION

Before purchasing this appliance, read important information about its estimated annual energy consumption, yearly operating cost, or energy efficiency rating that is available from your retailer.

SELECTED FEATURES

Before selecting a heat pump for your home, talk to your heating and cooling dealer about the features that will help extend the life and performance of the brand you choose. After all, you want the best heat pump that is the perfect match for your home and your budget.

FEATURES*	Goodman	Amana <small>Heating & Air Conditioning</small>	Distinctions <small>Amana</small>	CARRIER ¹	LENNOX ²	TRANE ³	RHEEM ⁴
	FACTORY INSTALLED	FACTORY INSTALLED	FACTORY INSTALLED	FIELD INSTALLED	FACTORY INSTALLED	FACTORY INSTALLED	FIELD INSTALLED
FILTER DRIER							
CRANKCASE HEATER	●	●	●		select models		
SUCTION LINE ACCUMULATOR	●	●	●	●			
DEFROST NOISE SUPPRESSION SYSTEM	SMARTSHIFT™	SMARTSHIFT™	SMARTSHIFT™				
COMPRESSOR SOUND BLANKET		●					
LOW PRESSURE SWITCH	●	●	●	●	●	select models	●

*This comparison was developed using competitive websites for the brand names listed and represents their entire heat pump product offering of 13 SEER or higher R-410A refrigerant units. Information was captured on February 1, 2013. Because many manufactures often change or add components to their products, we suggest that you request additional information from your local heating and cooling dealer. Please note, not all heat pumps from a given manufacturer include all the features presented earlier in this publication. The list represents the features that are or are not included on all heat pump products by the indicated brand name.

1 - Carrier is a registered trademark of United Technologies Corporation.

2 - Lennox is a registered trademark of Lennox International, Inc.

3 - Trane is a registered trademark of Ingersoll-Rand, PLC.

4 - Rheem is a registered trademark of Paloma Industries.



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Daikin Industries, Ltd. (DIL) is a Fortune 1000 company with more than 49,000 employees worldwide, making it the number one residential and commercial HVAC manufacturer in the world. Daikin is engaged primarily in the development, manufacture, sales and aftermarket support of heating, ventilation, air conditioning and refrigeration equipment, refrigerants and other chemicals, as well as oil hydraulic products. DIL is headquartered in Osaka, Japan, has manufacturing operations in 18 countries and a sales presence in more than 90 countries.

The company provides innovative, premium quality indoor climate management solutions to meet the changing needs of residential, commercial and industrial customers.



a member of **DAIKIN** group

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