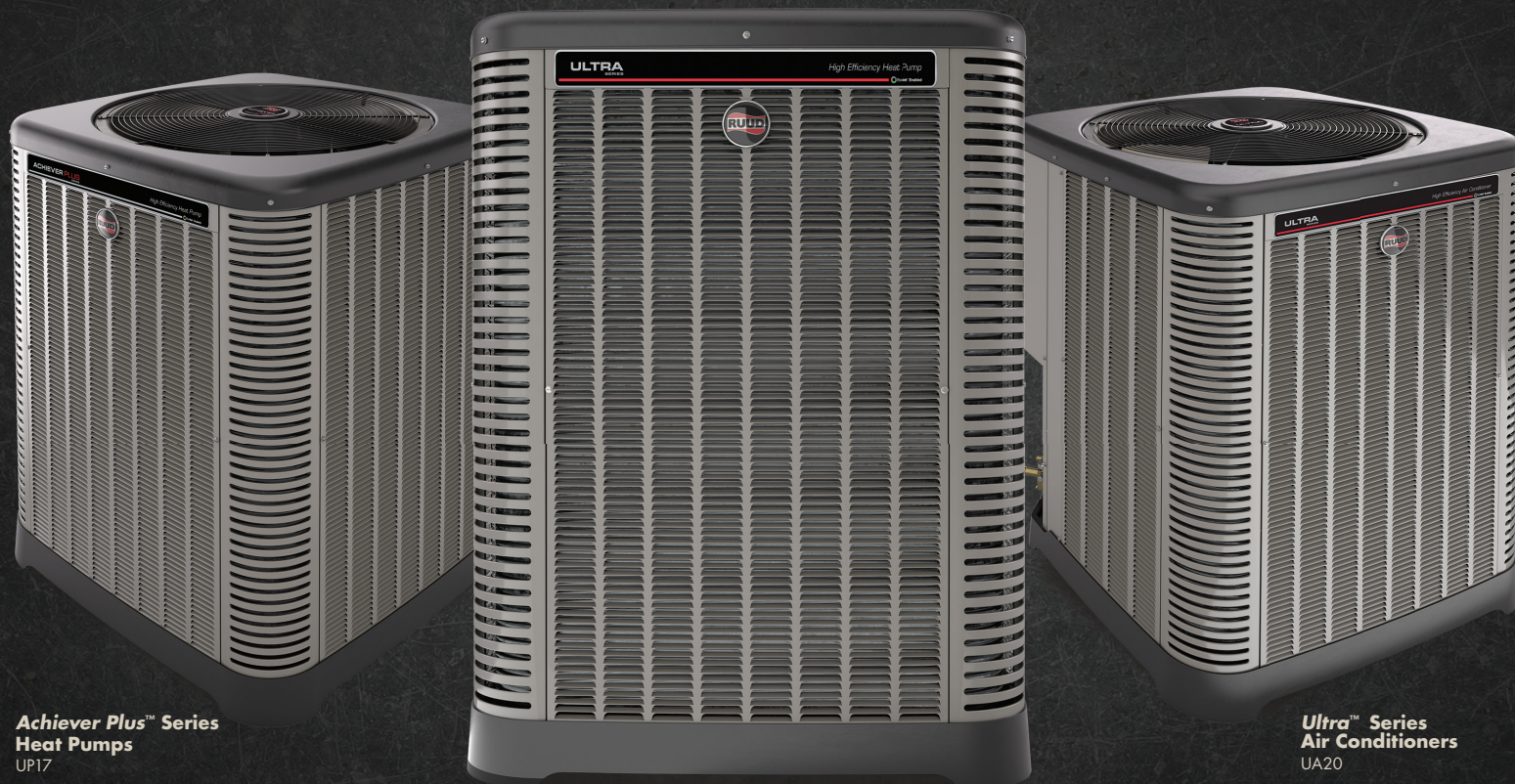




# INVERTER-DRIVEN PRECISION

RUUD® *ULTRA*™ SERIES VARIABLE-SPEED  
AIR CONDITIONERS & HEAT PUMPS &  
*ACHIEVER PLUS*™™ THREE-STAGE HEAT PUMPS



**Achiever Plus™ Series  
Heat Pumps**  
UP17

**Ultra™ Series  
Heat Pumps**  
UP20

**Ultra™ Series  
Air Conditioners**  
UA20

RELY ON RUUD.™



We Thought of Everything... And Then Some.

## What is 360°+1?

For nearly a century, Ruud® has been committed to engineering the highest-quality, highest-performing, highest-efficiency products on the market. Our 360°+1 design philosophy takes Ruud's industry-leading innovation to the next level. We're building advanced 360° Performance™, 360° Installability™, 360° Serviceability™, and 360° Integration™ into the smallest details of every single product. Then we take it a step further with exclusive PlusOne™ Advantages designed to make your job easier—and your customers' experience better than ever before. That's 360°+1.

**Achiever Plus™ Series  
Heat Pumps**  
UP17

**Ultra™ Series  
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**Ultra™ Series  
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UP20



# Inverter-Driven Solutions from Ruud®

Led by our innovative **Ultra™ Series** models and featuring some of the **industry's best efficiencies**<sup>1</sup>—up to 54% higher for cooling (up to 20 SEER) and 58% higher for heating (up to 13 HSPF on heat pumps) compared to typical designs<sup>2,3</sup>—our inverter-driven platform far **outpaces single-stage systems**, while offering **significant benefits over competitive models**.

For your customers, variable-speed and three-stage inverter-driven technology provides precise, quiet comfort via **all-day temperature, humidity, and indoor air quality management** enhanced by **EcoNet™ Air + Water Control** compatibility. Durable components throughout, including a Copeland Scroll™ variable-speed compressor, come with a **10-year, limited parts warranty**—plus a **10-year, conditional unit replacement warranty\***—for added peace-of-mind.

For you, there's exclusive, contractor-friendly features like **EcoNet Enabled diagnostics, PlusOne™ Expanded Valve Space and PlusOne Triple Service Access** for faster, easier installation and servicing. And unlike other brands', Ruud's **Ultra™ Series** inverter-driven products feature the **same high-efficiency ratings across all capacities in a model line**<sup>4</sup>—so you can give homeowners the right-size unit for their home, without downsizing their energy savings.

<sup>1</sup>As compared to SEER ratings for comparable Carrier®, Trane®, Lennox®, York®, Goodman®, Daikin® and Nordyne® models ranging between 16 and 25.5 SEER, as of May 2015

<sup>2</sup>As compared to standard, 13-SEER-rated air conditioning units

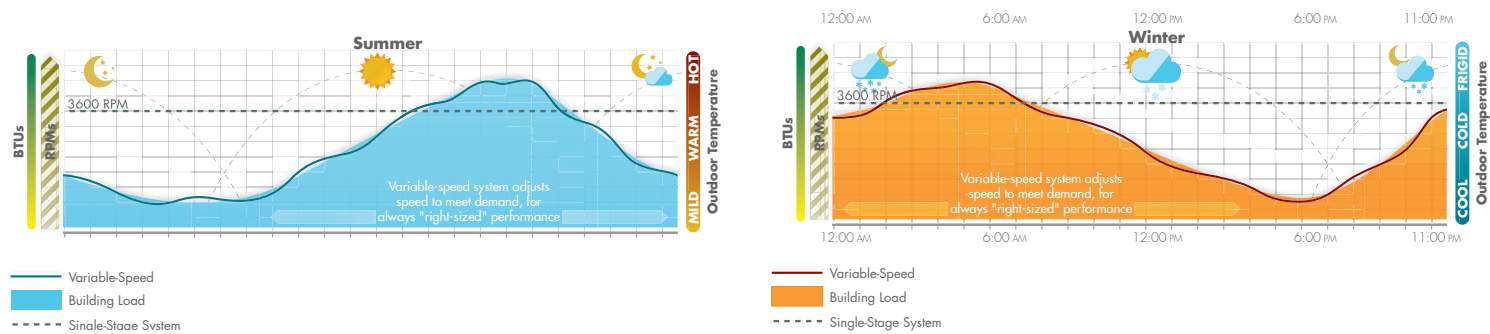
<sup>3</sup>As compared to standard, 8.2-HSPF-rated heat pump units

\*10-year conditional unit replacement on compressor failure; warranty registration required

<sup>4</sup>Refers to the full range of 2-, 3-, 4- and 5-ton capacities for Ultra™ Series models

# Comfort: Perfectly-Sized for all Conditions

Seasonal, 24-Hour Cooling & Heating Requirements for the Home: Variable-Speed Operation

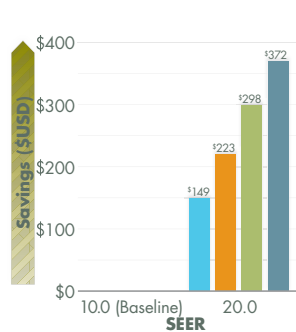


A variable-speed unit adjusts its speed based on current outdoor and indoor conditions, delivering precisely the correct amount of BTUs to satisfy the home building load and perfectly maintaining the thermostat setpoint.

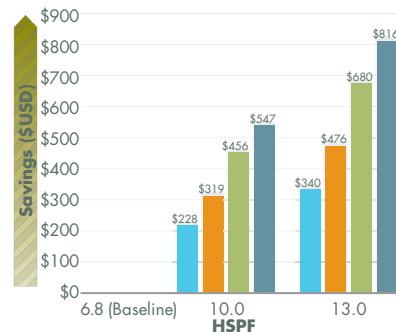
# Savings: Top-of-the-Line Efficiency

A typical variable-speed unit is capable of modulating its capacity to meet building loads under outdoor temperatures as low as 7°F in the heating mode to as high as 107°F in the cooling mode. While modulating, these systems can achieve up to 39 EER—2.4 times the energy efficiency of a single-stage unit under the same conditions. Because inverter-driven solutions operate more efficiently, they perform better AND save on energy costs.

Annual Energy Cost Savings for  
Ruid® Air Conditioners:  
10-SEER Baseline\*



Annual Energy Cost Savings for  
Ruid® Heat Pumps:  
6.8-HSPF Baseline\*



Unit Capacity    2-Ton    3-Ton    4-Ton    5-Ton

**For more information  
on operating costs and  
payback schedules,  
please visit the EPA's  
ENERGY STAR® websites:**

Heat Pumps:  
<http://bit.ly/EnergyStarHeatPumps>

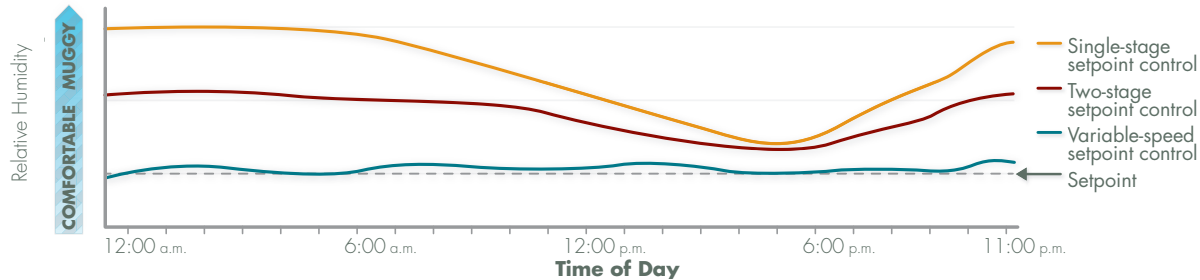
Air Conditioners:  
<http://bit.ly/EnergyStarAirConditioners>

\*Most commonly replaced system. Energy savings shown are calculated per AHRI (Air-Conditioning, Heating, and Refrigeration Institute) annual operating costs and represent directional numbers most applicable to typical cooling and heating requirements within the mid-latitudes of the U.S.

# Improved Built-in Indoor Air Quality

Because of longer runtimes, inverter-driven technology allows for improved filtering and cycling of clean air, and controls humidity, resulting in better comfort and indoor air quality overall.

Summer Cooling Load Profile: Relative Humidity



Single-stage systems (represented by the orange line graph) can only operate at one speed, and are either on or off. When the system is off, humidity levels can increase because no moisture is being removed from the home in the off cycle. This means these systems struggle to first reach a humidity setpoint (represented by the gray dashed line) and then maintain that point as conditions change throughout the day.

While better than single-stage systems due to their ability to operate at two “on” speeds (in addition to off), two-stage systems (red line) are not able to achieve the precision of variable-speed systems (navy line).

Because they operate using a longer, more efficient “on” cycle—constantly adjusting their performance to match surrounding conditions—variable-speed systems are able to quickly reach and then consistently maintain a humidity setpoint.



Superior comfort and efficiency, plus all the Performance, Installability™, and Serviceability you expect from Ruud®.

# Ruud® Products Featuring Inverter-Driven Technology



UP20

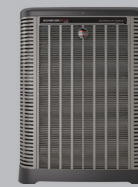


UP17



UA20

Two-Stage Cooling  
from Ruud



UA17

<b>NOMINAL SIZES</b>	2-, 3-, 4- & 5-ton models	2-, 3-, 4- & 5-ton models	2-, 3-, 4- & 5-ton models	2-, 3-, 4- & 5-ton models
<b>HSPF RATING</b>	Up to 13 HSPF	Up to 11 HSPF		
<b>SEER RATING</b>	Up to 20 SEER	17 SEER across all capacities	Up to 20 SEER	Up to 17 SEER
<b>MOTOR TYPE</b>	ECM Motor	Standard PSC Motor (single-speed)	ECM Motor	Standard PSC Motor (single-speed)
<b>VALVE TYPE</b>	Indoor/Outdoor EEV (Electronic Expansion Valve)	Indoor/Outdoor EEV (Electronic Expansion Valve)	Indoor EEV (Electronic Expansion Valve)	Indoor EEV (Electronic Expansion Valve)
<b>COMPRESSOR TYPE</b>	Copeland Scroll™ variable-speed compressor	Copeland Scroll™ variable-speed compressor	Copeland Scroll™ variable-speed compressor	Copeland Scroll™ UltraTech™ compressor
<b>AVAILABLE SPEEDS</b>	Variable speeds from 1200 RPM to 7000 RPM	3 speeds: low, medium, high	Variable speeds from 1800 RPM to 7000 RPM	2 speeds: medium, high
<b>RUUD LIMITED WARRANTY</b>	10-year conditional unit replacement warranty; 10-year limited parts warranty*	10-year conditional unit replacement warranty; 10-year limited parts warranty*	10-year conditional unit replacement warranty; 10-year limited parts warranty*	10-year conditional unit replacement warranty; 10-year limited parts warranty*
<b>ECONET™ COMPATIBILITY</b>	EcoNet™ Enabled**	EcoNet™ Enabled**	EcoNet™ Enabled**	EcoNet™ Enabled**
<b>SYSTEM COMPATIBLE AIR HANDLERS</b>	Pairs with the EcoNet Enabled RHMV (variable-speed) air handler	Pairs with the EcoNet Enabled RH2T (2-speed) and RHMV (variable-speed) air handlers	Pairs with the EcoNet Enabled RHMV (variable-speed) air handler	Pairs with the EcoNet Enabled RH2T (2-speed) and RHMV air handlers
<b>SYSTEM COMPATIBLE GAS FURNACES</b>	Pairs with the EcoNet Enabled U802V furnace or U97V/U96V furnace/RCF coil with EEV when dual-fuel system is required	Pairs with the EcoNet Enabled U802V furnace or U97V/U96V furnace/RCF coil with EEV when dual-fuel system is required	Pairs with the EcoNet Enabled U802V furnace or U97V/U96V furnaces/RCF coil with EEV	Pairs with the EcoNet Enabled U802V furnace or U97V/U96V furnace/RCF coil with EEV

\*Refer to the full Limited Warranty Certificate for complete details. Conditional warranties require registration.

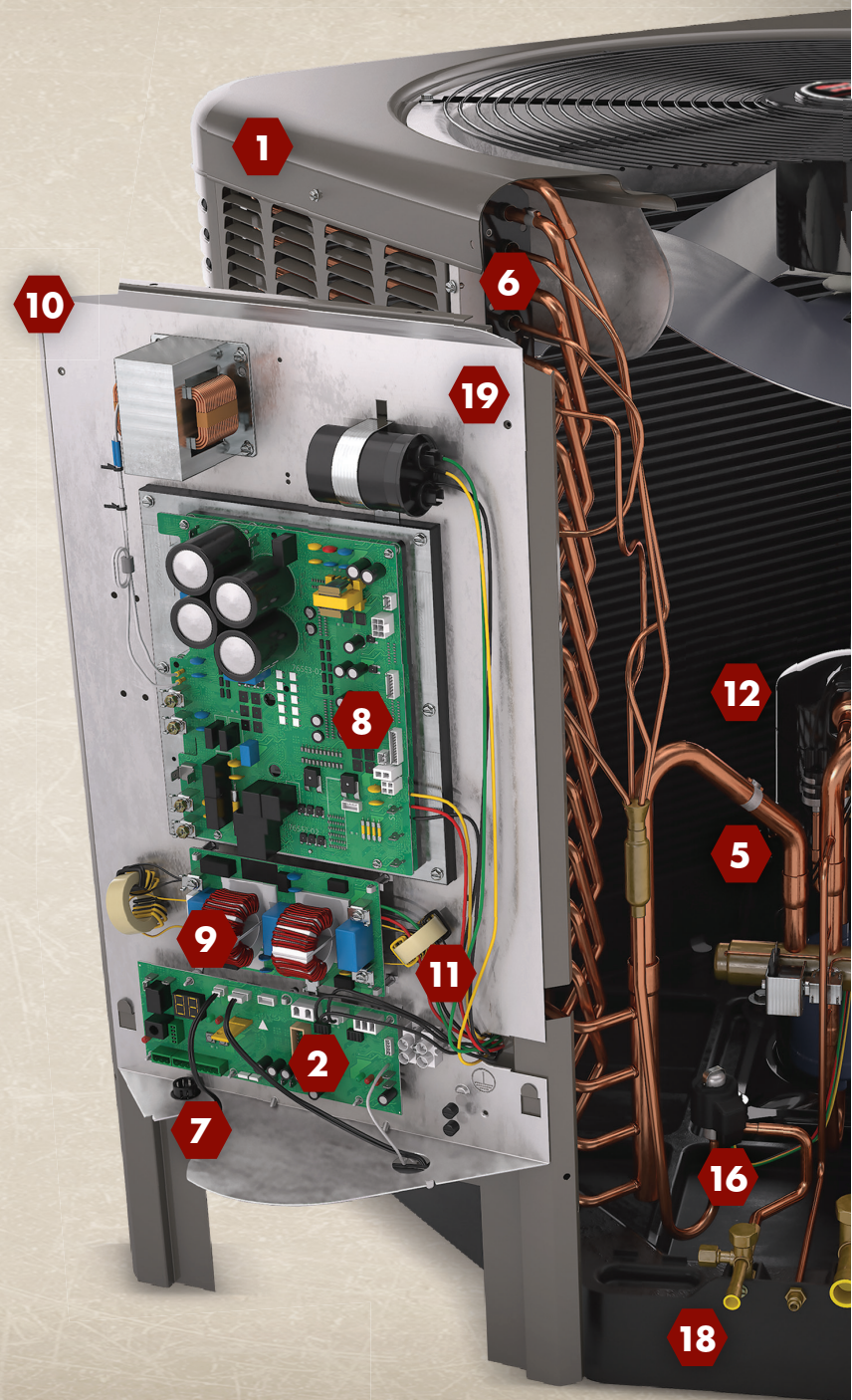
\*\*Purchase and installation of EcoNet WiFi Kit and EcoNet Control Center required. WiFi broadband Internet connection required. Must be paired with EcoNet Enabled furnace or air handler.

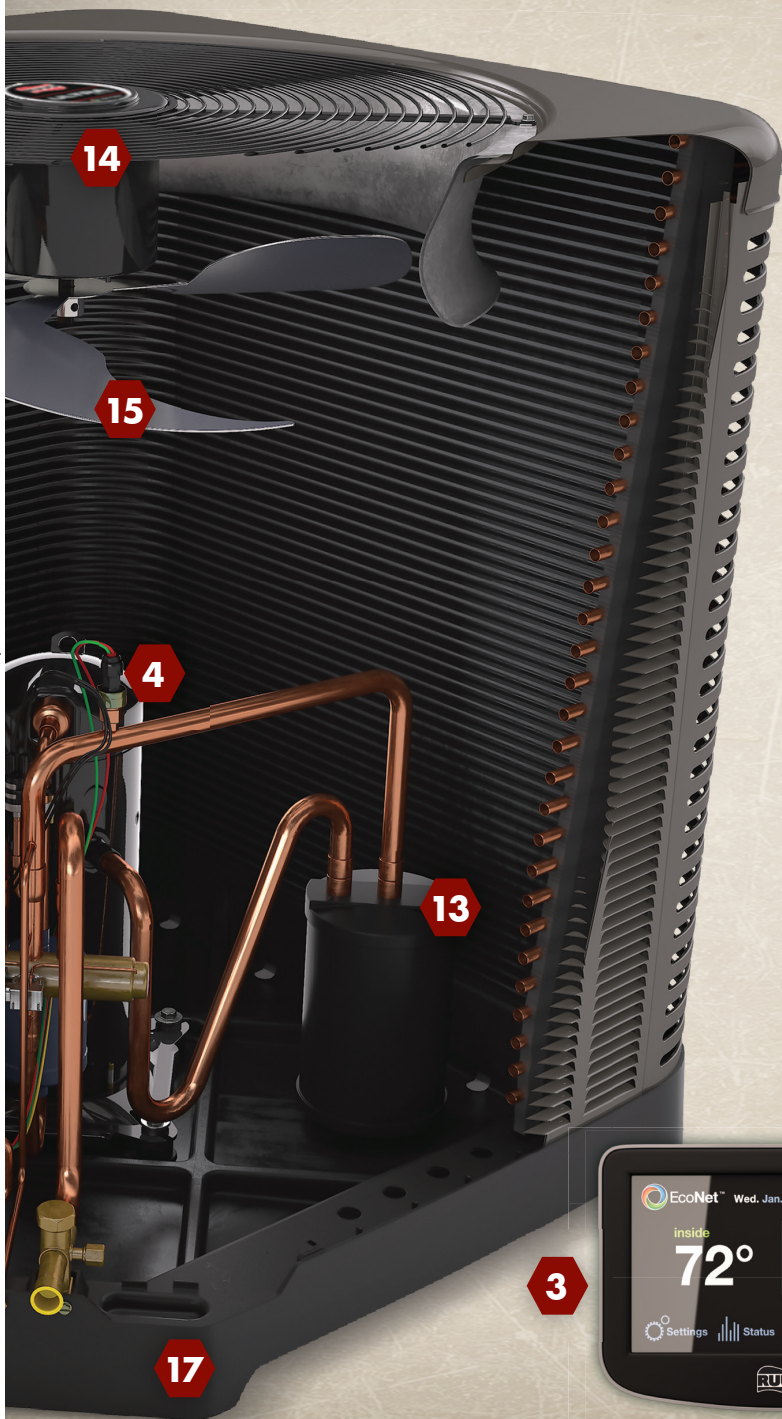
# Inverter-Driven Technology

EcoNet™ Enabled, Inverter-Driven Ruud® *Ultra™* Series Variable-Speed Heat Pumps and Air Conditioners, and *Achiever Plus™* Series Three-Stage Heat Pumps, are able to operate at a wide range of speeds in order to precisely adapt their cooling capacities (and, in the case of heat pumps, heating capacities as well) to current conditions and demands.

## How It Works

The EcoNet™ Enabled, inverter-driven Ruud *Ultra™* Series Variable Speed Heat Pump **(1)** incorporates an outdoor unit control (VSODU) **(2)** that continuously monitors the EcoNet control center's **(3)** temperature and humidity set point, suction pressure **(4)**, suction temperature **(5)**, outdoor coil temperature **(6)** and outdoor temperature **(7)** and feeds this information to the Inverter Control Motor Drive **(8)**. The Inverter Control Motor Drive is electrically protected by the low pass filter **(9)** that only permits the passage of a 60-hertz signal to the Inverter Control Motor Drive, the Choke **(10)** that absorbs power spikes that could occur, and the Ferrite Rings **(11)** that prevent electrical noise. The Inverter Control Motor Drive converts AC to DC power, sends it to the Copeland Scroll™ variable-speed compressor **(12)** Brushless Permanent Magnet Motor (BPM), dynamically adjusting its speed. The Copeland Scroll variable-speed compressor is protected by a Suction Accumulator **(13)**, preventing liquid refrigerant from entering the compressor. Simultaneously the VSODU control transmits the electrical input to the ECM outdoor fan motor, **(14)** which is equipped with the latest swept wing fan technology **(15)** and the Electronic Expansion Valve (EEV), **(16)** which syncs up with the compressor speed to deliver the exact capacity the home needs to meet its comfort requirements. The result of this advanced technology is significantly improved energy efficiency and comfort.





**The New Composite Base Pan (17)** dampens sound, captures louver panels, eliminates corrosion, and reduces number of fasteners needed.



**PlusOne™ Expanded Valve Space—3"-4" and -5" service valve space (18)** provides a minimum working area of 27-square-inches for easier access.

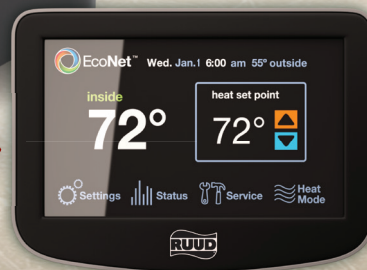


**PlusOne™ Triple Service Access 15"-wide, industry-leading corner service access (19)** makes repairs easier and faster. The two-fastener removable corner allows optimal access to internal unit components. Individual louver panels come out once fastener is removed for faster coil cleaning and easier cabinet reassembly.



**PlusOne™ Energy Efficiency** offers minimum of 20-SEER and 13-HSPF system performance across all capacities.

**EcoNet™ (3)** is an innovative technology exclusively from Ruud that will allow monitoring and control of Ruud air conditioning, heating and water heating systems—all from a single access point, whether customers are home or away. This will allow products that feature EcoNet technology to work together to ensure optimal performance and energy efficiencies in the home.



# Why Ruud?

## Relationship, Dedication and Innovation

Ruud makes customers our first priority. Our approach as a company is to keep the dialogue ongoing and to listen. Then act. The innovations we've developed throughout the years in both the HVAC and water heating industries are a direct result of that process. And we have a long list of industry firsts to show for it, with more to come. Ruud is dedicated to providing the products your customers need and the opportunities you want to expand your offerings and increase profitability. That's the Ruud 360°+1 approach to partnership.



Learn more at [MyRuud.com/360](http://MyRuud.com/360)

*In keeping with its policy of continuous progress and product improvement, Ruud reserves the right to make changes without notice.*

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