

# THE IDEAL HVAC SOLUTION

## DEDICATED OUTDOOR AIR SYSTEM



# FRESH OUTDOOR AIR

## HELPING BUILDINGS BREATHE

Ruud's Dedicated Outdoor Air System offers exceptional energy savings, unprecedented comfort, and precise humidity control. Ruud DOAS is the ideal HVAC solution for schools, hospitals, restaurants, grocery stores, hotel corridors, and any commercial application that requires conditioned outdoor air.



### THE IDEAL SOLUTION FOR YOUR SPACE.

Rapid leadtimes and retrofit-ready curb adaptors  
make installation effortless for any application:



RESTAURANTS



GROCERY



SCHOOLS



SENIOR LIVING /  
APARTMENTS



GROW  
FACILITIES



LABORATORIES /  
CLEAN ROOMS



HOTELS



WAREHOUSES



NATATORIUMS



**ENGINEERED  
TO LAST.**  
INDUSTRY BEST  
WARRANTY.

Every Ruud DOAS unit comes standard with a 5 year parts warranty. DOAS is designed with sustainability in mind and is built to last an industry leading 25 years. Removable hinged access doors and an insulated drain pan allow for easy maintenance and service. And double wall, insulated galvanized steel construction provides exceptional durability.



**USER FRIENDLY WITH  
COMPLETE CONTROL.**

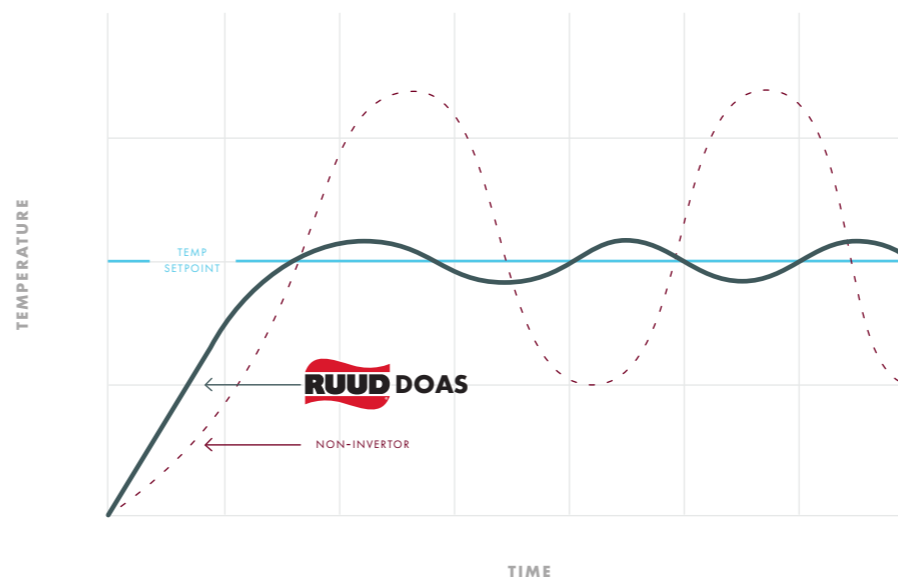
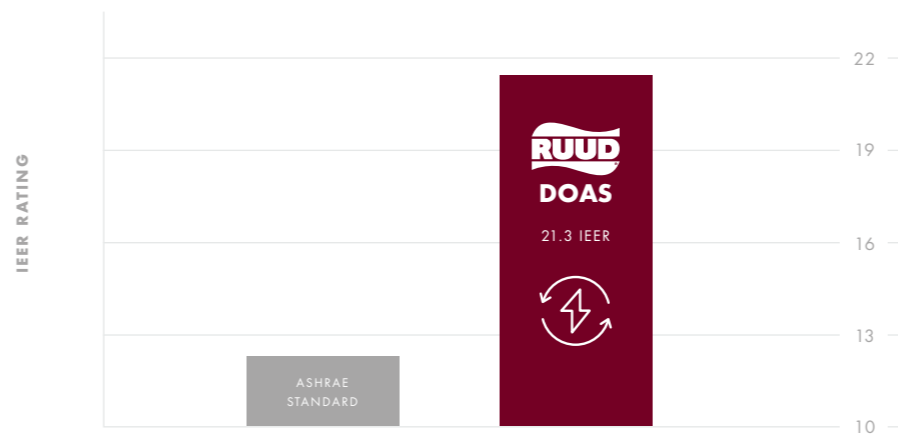
Sensors throughout Ruud DOAS continually measure a wide variety of data points. All of this information is just a touch away through the onboard user control panel, as well as remotely accessible and configurable through an optional BACNet or Lonworks card that ties into your building's BMS system, ensuring that your unit operates at peak performance at all times.



**DURABLE**  
TOP QUALITY COMPONENTS

Every detail of Ruud DOAS has been carefully designed and selected to provide an exceptionally high quality product. Each aspect of the unit has been intentionally curated with performance and longevity in mind. All fans are 100% direct drive for high efficiency and maintenance-free operation. A variable speed inverter duty compressor is provided standard, and aerodynamic bionic fan blades drastically reduce noise emissions. You can rely on Ruud DOAS to operate headache free for years to come.

WITH DOAS  
YOU HAVE THE  
MOST EFFICIENT  
TECHNOLOGY, THE  
HIGHEST QUALITY  
COMPONENTS,  
AND THE TIGHTEST  
HUMIDITY AND  
TEMPERATURE  
CONTROLS.



#### EXCEEDING EXCELLENCE

### SUPERIOR ENERGY EFFICIENCY

Ruud DOAS achieves up to an impressive 21.3 Integrated Energy Efficiency Ratio (IEER) rating which is over 1.5× the ASHRAE 90.1-2016 IEER standard. Designed with the future in mind, Ruud DOAS is poised to exceed rising IEER standards for years to come.

#### RELIABLE PRECISION

### PRECISE TEMPERATURE & HUMIDITY CONTROL

Ruud DOAS contains fully modulating refrigeration and optional hot gas reheat components that deliver the amount of air requested at the exact desired temperature and humidity. Variable speed components allow DOAS to adjust its heating and cooling capacity to match the required load. This provides a consistent temperature throughout the space and avoids large temperature swings often associated with single stage equipment.

## RUUD DOAS DETAILS: BACK OF UNIT

### 01 VARIABLE SPEED DIRECT DRIVE SUPPLY FAN

- + High efficiency Variable Frequency Drive (VFD) or Electronically Commutated Motor (ECM) control options available
- + Variable fan speed and total airflow monitoring with Ruud controls
- + Low maintenance and reduced failures due to brushless / beltless design
- + High Efficiency fans provide quiet operation and significant energy savings

### 04 UP TO THREE LAYERS OF OUTDOOR AIR FILTRATION

- + Standard 2" metal mesh outdoor air filters
- + Filtration options available – 2" thick MERV-8 & 13, 4" thick MERV-15 & HEPA
- + Allowing for maximum clean airflow at reduced static pressures – available with clogged filter monitoring option

### 07 WIDE INDOOR COIL DESIGN

- + Up to 7-row coil allows for optimal equipment efficiencies, full conditioning of outdoor air, and moisture control through increased residence time of airstream
- + Staggered coil design reduces supply air bypass

### 02 LOW-LEAKAGE OUTDOOR AIR DAMPER / INTAKE LOUVER

- + Modulates to accurately meet variable outdoor air requirements
- + Integrated louver and bird screen assembly included, Exceeds AMCA Class 1A Leakage Standards
- + Low entering air velocity prevents debris or precipitation from entering the unit airstream

### 05 STAINLESS STEEL SLOPED CONDENSATE DRAIN PAN

- + Insulated drain pan allows for easy maintenance and serviceability
- + Float switch monitors water level and protects against condensate overflow
- + Exceeds ASHRAE 62.1 Standards

### 08 ELECTRONIC EXPANSION VALVE

- + Provides automated superheat control and monitoring by modulating from 0-100%
- + Precise position control prevents liquid migration during off-duty cycles

### 03 AVERAGING TEMPERATURE SENSOR / HUMIDITY SENSOR

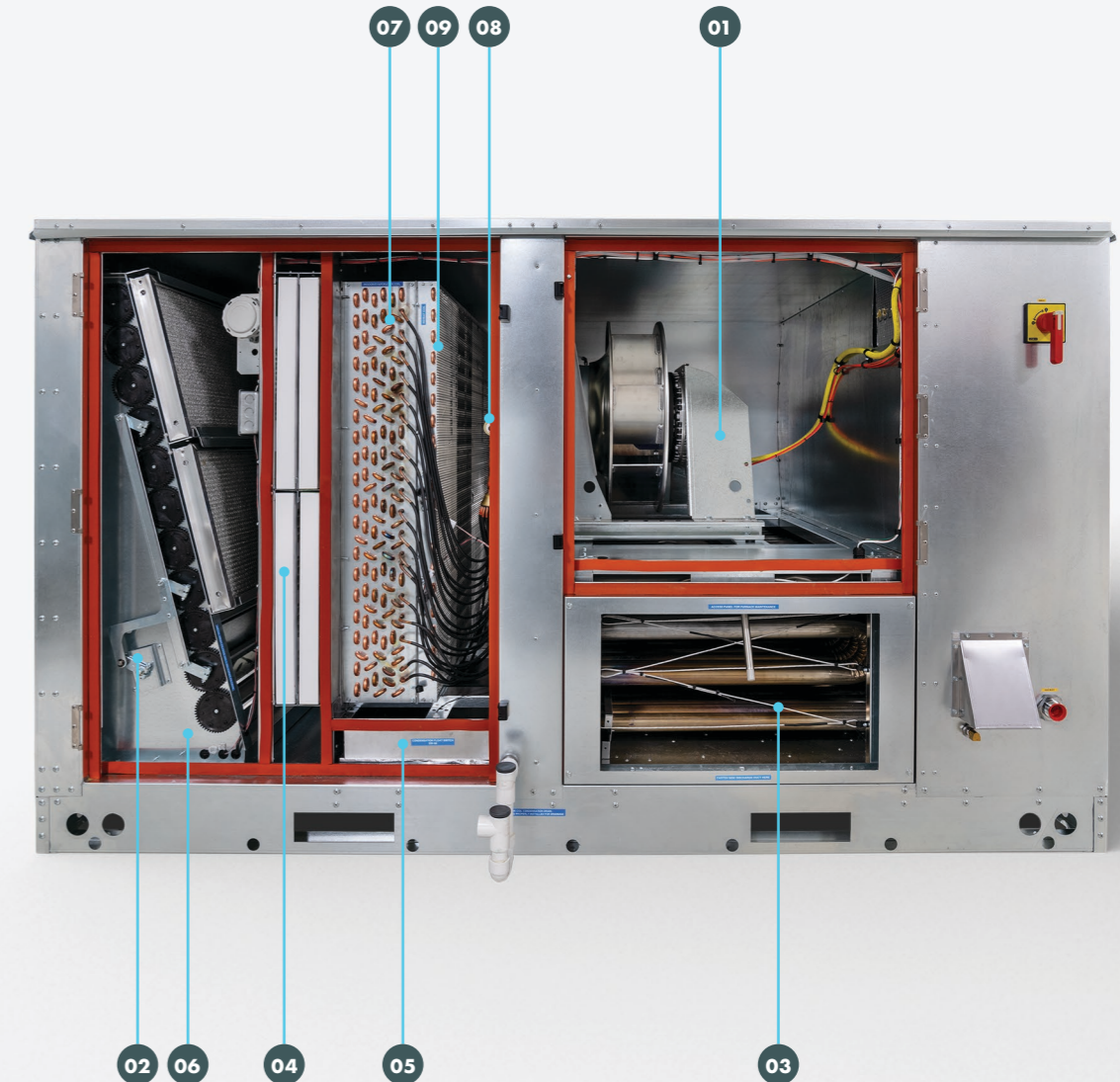
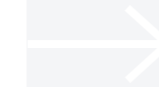
- + Monitors mixed air temperature / humidity
- + Available outdoor, return, mixed, discharge, and space air temperature / humidity measurements
- + Averaging Intake, Indoor Coil, and Discharge temperature sensors provide accurate temperature readings for correct unit modulation

### 06 SMOKE DETECTOR (OPTIONAL)

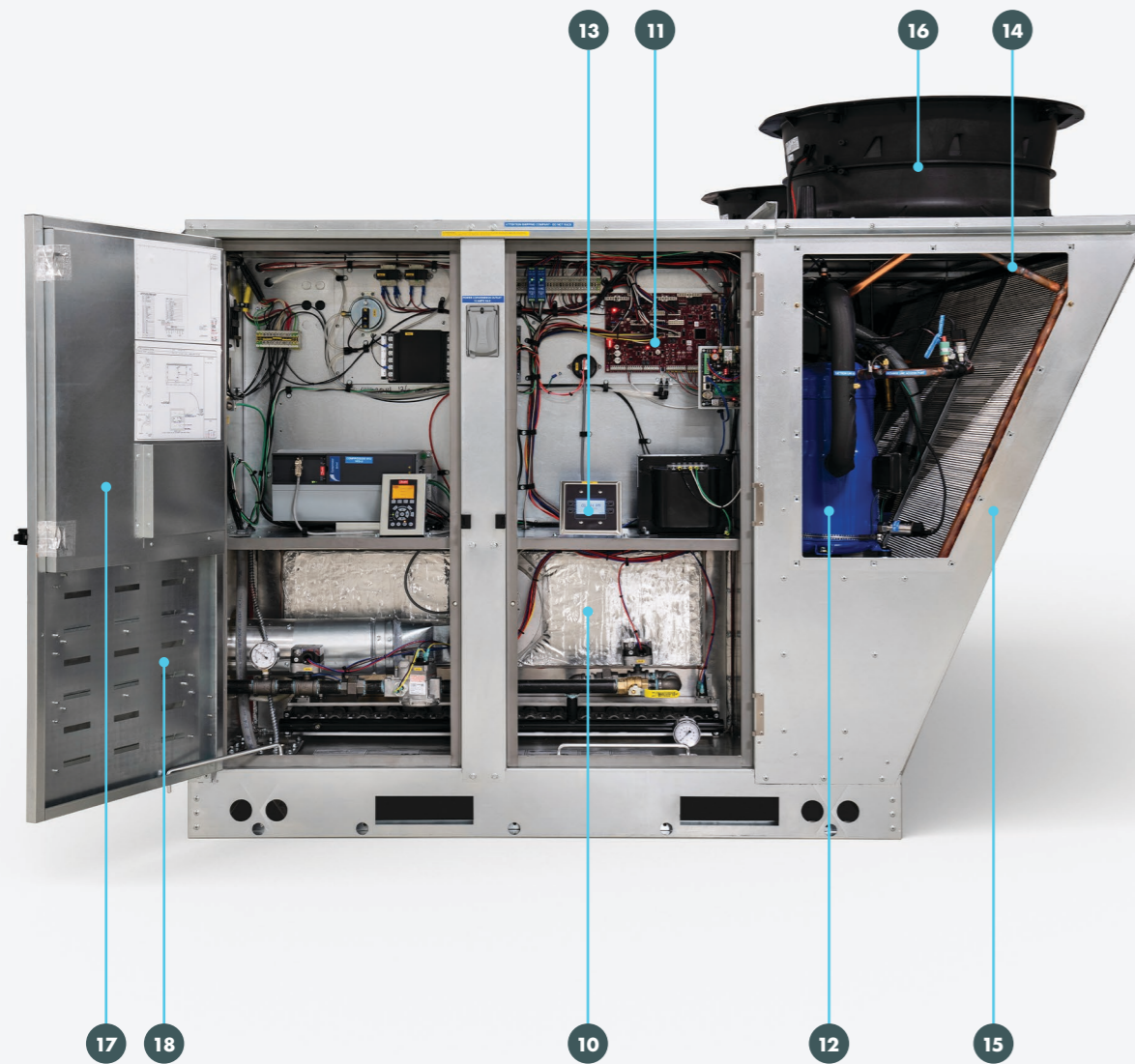
- + Monitors "fire activity" in the return airstream
- + Shuts down blower to protect unit from smoke or fire damage
- + Available to "Ship Loose" for preferred installation locations

### 09 FULLY MODULATING HOT GAS REHEAT COIL (OPTIONAL)

- + Provides highly accurate humidity / temperature control
- + Electronic reheat valve allows for precise capacity control



**RUUD DOAS DETAILS: SIDE OF UNIT**



**10 MODULAR / SPLIT MANIFOLD HEATING (OPTIONAL)**

- + Natural gas indirect fired furnace with constant 80% efficiency throughout modulation (90% high efficiency option available)
- + Propane, Heat Pump, and Modulating SCR Electric Heat options available
- + Enhanced heating turndown (18:1) for minimum temp. rise at low loads
- + Double safety components (Pressure Switch, On/Off Gas Valve, Modulating Valve, Gas Shut-off Valve)

**13 HUMAN MACHINE INTERFACE (HMI)**

- + Total control of the unit through HMI with access to real-time space temperature, humidity, refrigerant temperature, and pressure data
- + Customizable user-friendly interface allows for simple programming of temperature, humidity and scheduling settings
- + Integrated temperature/humidity sensor avoids need for additional space measurements

**16 VARIABLE SPEED OUTDOOR FANS WITH EC MOTORS**

- + 10:1 turndown maintains peak efficiency for all outdoor air conditions
- + Aerodynamically designed bionic blades drastically reduce noise emissions

**11 INTEGRATED CONTROLS**

- + In-house controls developed using multiple PID loops to maximize energy efficiency
- + Several control offerings – full integration to BAS/DDC
- + Available extreme low ambient logic allows for DX cooling operation in ambient conditions down to -25 °F
- + Total Unit Economizer monitors intake conditions to provide exact (least) amount of conditioning needed to meet space conditions, reducing energy consumption

**14 HEAVY DUTY PIPING & SUPPORTS**

- + Hanging supports and vibration isolators prevent refrigeration piping from moving during transport and operation
- + Machine-bent copper piping reduces amount of brazes and possible failure points

**17 DOUBLE WALL, GALVANIZED STEEL CONSTRUCTION**

- + Insulated with 2" thick, R13 closed cell foam or 1" thick, R4.3 fiberglass board
- + Corrosion resistant, heavy gauge, G-90 galvanized steel

**12 DANFOSS VARIABLE SPEED INVERTER SCROLL COMPRESSOR**

- + Modulating and throttling ability to provide precise load matching with reduced energy consumption
- + Protective operating envelope and Pumpdown logic minimizes risk of damage and premature failure
- + Variable Frequency Drive (VFD) provides phase and over-amp protection to maximize life of unit
- + Standard oil level sensor, crankcase heater, and suction line accumulator

**15 CONDENSING COIL HAIL GUARD (OPTIONAL)**

- + Protects condenser coil from damage
- + Correctly sized to ensure a clean overall look with total protection
- + Undamaged coils provide more efficient heat transfer during normal operation

**18 REMOVABLE HINGED ACCESS DOORS**

- + Allow for easier maintenance and serviceability
- + Fully insulated controls cabinet reduces condensation, avoiding damage to controls

# SYSTEM SIZING & SPECIFICATIONS

<b>UNIT SIZE (Nominal Tonnage)</b>	<b>5.0</b>	<b>6.0</b>	<b>7.5</b>	<b>8.0</b>	<b>10.0</b>	<b>12.5</b>	<b>15.0</b>	<b>20.0</b>	<b>22.0</b>	<b>25.0</b>	<b>30.0</b>
<b>Min Airflow (CFM)</b>	500	600	750	800	1000	1250	1500	2000	2200	2500	3000
<b>Max Airflow (CFM)</b>	2000	2400	3000	3200	4000	5000	6000	7000	8800	10000	12000
<b>Indoor Coil Rows</b>	4	4	5	5	5	6	6	7	5	5	6
<b>Cooling Turndown Ratio</b>	7:1	7:1	7:1	7:1	7:1	7:1	4:1	4:1	4:1	4:1	4:1
<b>IEER</b>	17.9	19.5	18.6	20.2	18.6	21.3	18.8	18.2	18.1	17.9	17.8
<b>Max Heating Turndown Ratio*</b>	20:1	17:1	14:1	21:1	16:1	25:1	16:1	16:1	18:1	18:1	18:1
<b>Furnace Input Capacity (MBH)</b>	50-200	50-200	50-200	50-300	50-300	150-500	150-500	150-500	200-600	200-600	200-600
<b>Electric Coil Capacity (kW)</b>	10-60	10-60	10-60	15-60	15-60	15-100	15-100	15-100	30-150	30-150	30-150
<b>Curb Size (L x W)</b>	71" x 41"	71" x 41"	71" x 41"	75" x 49.5"	75" x 49.5"	91" x 59.5"	91" x 59.5"	91" x 59.5"	111" x 80"	111" x 80"	111" x 80"
<b>Unit Length</b>	77.25"	77.25"	77.25"	81.75"	81.75"	99"	99"	99"	160"	160"	160"
<b>Unit Width</b>	62"	62"	62"	80.75"	80.75"	89.75"	89.75"	89.75"	89.75"	89.75"	89.75"
<b>Unit Height</b>	47.5"	47.5"	47.5"	60.75"	60.75"	69"	69"	69"	94"	94"	94"
<b>Approximate Weight (lbs)</b>	1000	1100	1200	1650	1730	2440	2500	2650	3750	4200	4500

\*Contingent upon heat source



For additional information, contact your local Ruud sales representative.

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