



The Name To Remember.

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Continuing a Tradition of Excellence.



Commitment to Quality. Dedication to Customer Satisfaction.



RL

SERIES

ROOFTOP CONDITIONERS—AIR HANDLERS

Imitated But Not Duplicated.

Since 1988, the objective of AAON® has been to design and manufacture only the highest quality heating and cooling products that not only perform beyond all expectations, but demonstrate their value each and every day to the user.

Engineering Excellence.

The AAONNAIRE® energy recovery wheel contained in the AAON® rooftop conditioners can recycle your energy dollars and reduce the cost of heating and cooling. It transfers a portion of the heating and cooling capacity being exhausted from the building to the air being brought into the building. The combination can increase the effective capacity of a 50 ton unit to the equivalent of a 60 or 70 ton unit with a minimal increase in energy consumption.

This increased capacity and energy efficiency holds true with all unit sizes from 2 to 230 tons, when selected with the AAONNAIRE® energy recovery feature.

Certified Performance.

AAON® utilizes Airxchange™ Energy Recovery Wheels to assure state of the art reliability and efficiency. Ratings are certified in accordance with the ARI Air-to-Air Energy Ventilation Equipment Certification Program, and is based on ARI Standard 1060-2000.

Call Us. Take Advantage of a proven source of rooftop products with a dedication to quality and customer satisfaction. Call your local AAON® Sales Representative today.

Air-cooled, evaporative-cooled or water-cooled

conditioners from 45 through 230 tons.

Air handlers available from 8,900 to 75,500 CFM.

It is the intent of AAON to provide accurate up-to-date specification data. However, in the interest of ongoing product improvement, AAON, Inc. reserves the right to change specifications and/or design of any product without notice, obligation, or liability.

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AAON products are covered by one or more of the following U. S. Patents: 5,738,167; 5,826,641; 5,839,505; 6,715,312

FULL FEATURED, ENERGY EFFICIENT, PACKAGED ROOFTOP UNITS TO MEET OUR CUSTOMER'S REQUIREMENTS TODAY!

RL SERIES

AAON® continuously strives to satisfy the dynamic industry requirement for larger, more energy efficient packaged rooftop equipment. The RL Series design incorporates the AAON® long-term commitment and dedication to excel as the premier manufacturer of rooftop equipment. RL Series units are available in multiple configurations and include many standard features that make AAON® synonymous with quality products to satisfy each customer's particular application.

AIR-COOLED CONDENSING

Copper tube mechanically bonded aluminum fin condenser coils are slope mounted to prevent physical damage on site. The outward facing coils are

intrusion protected with perforated metal screens. All condenser coils are designed for minimum 10°F of refrigerant sub-cooling. To promote energy efficient operation, all condenser fans are cycled off during periods of light load. All condenser fans are direct drive, axial flow propeller type and discharge vertically.

EVAPORATIVE-COOLED CONDENSING

When compared to Air-Cooled designs these units deliver both outstanding energy efficiency, and significant operational cost savings. Energy cost reduction can be 20% to 40% annually dependent on geographic location. Geographic locations that require a central chiller and cooling tower are

considered primary locations for application of the Evaporative-Cooled RL rooftop. The AAON® Evaporative-Cooled design includes exclusive features including:

- Interior evaporative-condenser construction is 304 stainless steel.
- Sump components are copper or other non-corrosive materials.
- Sump water circulation motor is TEAO with internal heater.
- Sump water level control.
- Fill water is positive solenoid controlled.
- Accessible, manual gate drain valve.
- Removable, easy clean spray nozzles.
- Maximum energy efficiency and extended operating temperature

range are achieved by VFD control of condenser fan motor speed based on cooling water temperature.

- Sump water treatment system and associated controls are completely factory installed. System includes a monitor, dispensers for each chemical, and a controller for dissolved solids, organic dispersal, and biocide are included. System also includes a controller for the blow-down cycle and injector pumps for all three chemicals.
- All treatment system components factory mounted, piped and wired.

WATER-COOLED CONDENSING

The energy efficient Water-Cooled units are of particular application value when there exists an accessible water source or when cooling tower water is available. The standard Water-Cooled RL Series units include these features:

- Shell and tube heat exchangers.
- Each heat exchanger is provided with a removable and cleanable type basket filter.
- Heat exchanger piping connections

are made within the condensing section of the rooftop unit.

AIR HANDLERS

The RL Model also fits the job when units are required without compressors. The unit will be built without a condensing section and walk-in compressor/control vestibule. All other features and options are readily

available. Air-Handler units may include the following options:

- Supplied with a DX coil and thermostatic expansion valve.
- Supplied with a chilled water coil in 4, 6 or 8 row.

The unit may be specified with any of the heating options to provide a year-round rooftop heating and cooling package.

FEATURES

Standard

- Completely factory assembled, piped and wired for a single point electrical connection.
- Entire unit specifically designed for outdoor application.
- Weatherproof cabinet constructed entirely of G90 galvanized steel and coated with gray polyurethane paint that surpasses 2500-hour salt spray test.
- All cabinet walls, roof and floor shall be a high performance composite panel constructed with G90 galvanized steel on both sides and a closed cell polyurethane foam interior core providing a rigid, impact resistant surface. All panels have a thermal break with no metal contact from inside to outside.

- Walk-in control vestibule houses the compressors, and the electrical control compartment.
- Low leak damper blades are constructed of hollow core extruded aluminum in an airfoil configuration and a rubber damper seal on each edge with aluminum end seals.

Optional

Many optional design features are available to allow maximum flexibility to meet the various job conditions and applications.

- Multiple economizer configurations available from manual adjustment to full modulating enthalpy control.
 - Power exhaust and return configurations with direct drive, axial flow fans.
 - Filter options include 2" pleated (standard) up to high efficiency cartridge filters. Filters may be located in the final filter position.
 - Factory installed AAON® Energy Recovery Wheels rated in accordance to ARI Standard 1060 and designated with the ARI Certification symbol.
 - Multiple heat options include electric, gas and hydronic.
 - Smoke and firestats available in the supply and/or return air streams.
 - Marine service lights available where customer required.
 - Interior metal panels are available as stainless steel.
 - Unit shall be available with R-410A refrigerant.
- the walls of the conditioned air compartments shall be 2 inches thick with a minimum R value of 13.
 - the roof of the conditioned air compartments shall be sloped at a minimum of 1/4 inch per foot and shall be an average of 2.5 inches thick with a minimum R value of 16.
 - the floor of the conditioned air compartments shall be 3 inches thick with a minimum R value of 19. The floor shall also have an aluminum tread plate covering the appropriate equipment access areas.
- Access doors are provided in areas subject to scheduled maintenance. Walk-in doors open against air pressure and include stainless steel full hinges, full perimeter gaskets and zinc cast lockable handles operational from inside or outside.
 - Unit specific color-coded wiring diagrams provided in point to point and ladder form, laminated and permanently affixed inside control vestibule electrical enclosure.
 - Scroll compressors are installed on sheet metal decks and rubber isolation mounts for quiet efficient operation.
 - Fan wheels are direct drive single inlet airfoil type.
 - Fan and motor assembly is spring isolation mounted.

Quiet Efficiency.

The standard backward inclined airfoil plenum blower(s) may be selected specific to the customer requirements within a minimum diameter and quantity. Spring isolation mounting of the fan assembly and blow-through design enhance sound attenuation in the supply air stream.



Cutaway of panel wall showing thermal break and foam core.

Access door and handle showing thermal breaks.

Dedicated Assembly Lines and Automated Sheet Metal Fabrication.

AAON's production staff, experience in the HVAC industry, and state of the art fabrication facilities, combine to produce premium quality, energy efficient rooftop equipment our customers desire.



RL SERIES

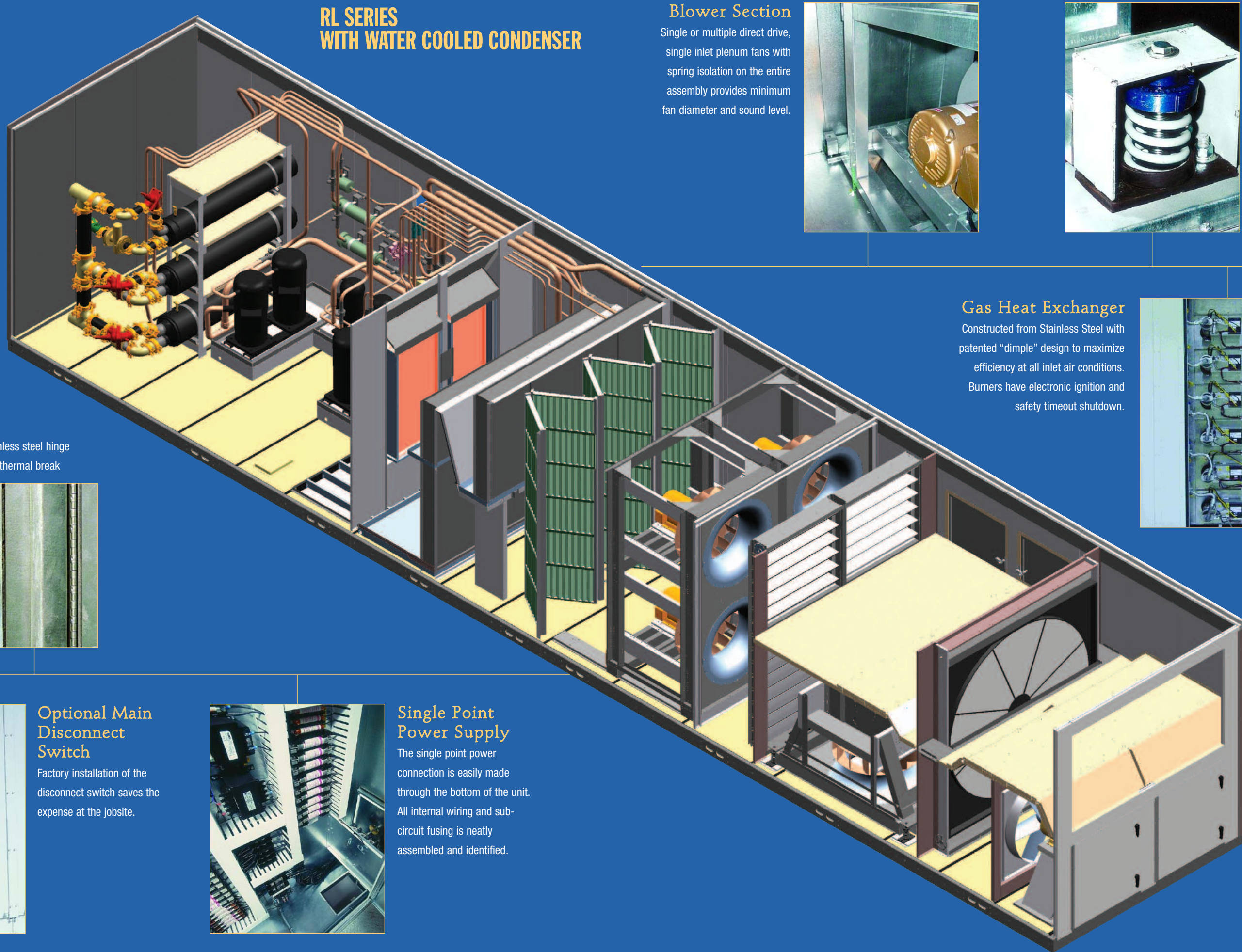
AIR, WATER OR EVAPORATIVE CONDENSED ROOFTOP CONDITIONERS.
THE ULTIMATE IN ENERGY EFFICIENCY.



Air-Cooled Model

RL SERIES

RL SERIES WITH WATER COOLED CONDENSER



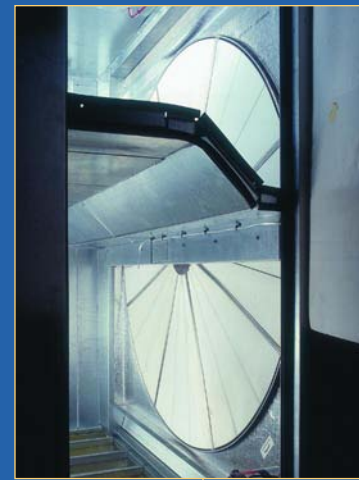
Blower Section

Single or multiple direct drive, single inlet plenum fans with spring isolation on the entire assembly provides minimum fan diameter and sound level.



Spring Isolators

The spring isolators provide sound attenuation for the main blower section.



AAONAIRE®

This energy recovery ventilation option can be provided in all model sizes allowing reduced equipment size and operating cost savings while lowering the humidity of the outside air being introduced into the conditioned space.



Painted Cabinet

The entire unit is constructed of G90 galvanized steel. To provide additional corrosion protection and enhance the appearance, the entire unit is covered with a polyurethane paint. This finish has passed 2500 hours under the salt spray test conditions.

Gas Heat Exchanger

Constructed from Stainless Steel with patented "dimple" design to maximize efficiency at all inlet air conditions. Burners have electronic ignition and safety timeout shutdown.



Electric Heat

Low watt density, nickel chromium element, electric resistance coils. Modules are 40 KW individual circuit fused with manual reset high temperature switches.



Filter Section

Similar to all the other sections, the full height access door provides for filter maintenance. Filters are vertical and face load to make replacement easy while inside the unit.



Access Doors

Bulb type sealing gasket



Stainless steel hinge and thermal break



Evaporative Condenser

The interior chamber is entirely stainless steel with individual circuits for each compressor. A desuperheater is installed above the moisture eliminators and spray nozzles and the copper tube condensers are below.



Air Cooled Condenser

The vertical discharge propeller fans provide maximum energy efficient airflow through the sloped copper tube condenser coils.



Complete Water Treatment

To insure the proper treatment of the water system can be correctly and accurately performed, AAON furnishes a three chemical system and all associated controls, injector pumps and control components.



Evaporator Coils

Each evaporator coil has a thermostatic expansion valve. Two compressors are connected to each evaporator coil. A double sloped drain pan is provided for positive drainage. Tubing is dressed and structurally supported.



Air Cooled Condenser Walk-In Compartment

The walk-in compartment provides shelter for the maintenance and service personnel while inspecting the compressors and the electrical control panel. A fluorescent light fixture is furnished in the compartment and is controlled by a light switch at the door.



Evaporative Condenser Walk-In Compartment

This is the nerve center of the equipment containing the compressors, electrical control panel, waterside pump, and the water treatment system.



Optional Main Disconnect Switch

Factory installation of the disconnect switch saves the expense at the jobsite.



Single Point Power Supply

The single point power connection is easily made through the bottom of the unit. All internal wiring and sub-circuit fusing is neatly assembled and identified.



Economizer

A full line of economizer options are available. All are low leakage with extruded airfoil blades and rubber edge and aluminum end seals.



Optional Exhaust and Return Fans

The power exhaust and return fans are available as plenum or axial flow type. Both designs are directly driven by the motor.



RL SERIES WITH AIR COOLED CONDENSER

R410A or R-22 Scroll Compressors

Draw-Thru Fans



Patented Desuperheat System Inhibits Scale Accumulation. The system utilizes an exclusive desuperheater above the wetted evaporative condenser section that can reduce the water consumption and chemical treatment requirements by 20 to 100% dependent on ambient temperature.

RL SERIES WITH AIR EVAPORATIVE COOLED CONDENSER

Blow-Thru Fans

AAONAIRE® integral energy recovery wheel

RL SERIES COOLING AND AIRFLOW PERFORMANCE DATA

RL Unit Size	RL Models	Air Cooled Capacity-Tons	Evaporative & Water Cooled Capacity-Tons	Air Flow CFM	Internal Dimensions	
					Height (in)	Width (in)
A	045, 060, 070	42 to 63	45 to 69	8,900 to 30,000	94	96
B	075, 095	69 to 88	75 to 94	10,500 to 32,000	94	96
C	100, 110, 125, 135	93 to 125	100 to 135	15,500 to 43,100	94	96
D	134, 155, 170	121 to 161	128 to 171	17,600 to 56,700	94	138
E	190, 210, 230	169 to 213	180 to 228	24,750 to 75,500	94	138

Note: All units are also available as air handlers.

Fan Selection Options to Meet Your Airflow and Sound Requirements.

The RL product can be configured as either a draw-through or blow-through arrangement. The supply blower assemblies are direct drive, air foil plenum fans with spring isolation. Plenum and axial flow return and exhaust configurations are also available.

The AAON ECat – Fan selection software easily permits a selection for constant speed or variable speed applications. The software determines the most efficient alternatives for the application as a function of fan quantity, fan diameter, fan blade width and rpm.

Inlet and outlet sound ratings are provided for each combination of fans and unit inlet and outlet sound ratings are determined for the overall unit configuration. Multiple fans provide improved reliability, greater efficiency, lower sound levels, and greater service options.

GAS HEAT

A system unique to AAON, the all stainless steel design construction assures dependable, long-term functionality. Through elimination of the need for internal turbulators, AAON's unique design assures trouble free service, capacity, and efficient performance. Up to 12 individual burners may be utilized. The total input of the A-C cabinet range is greater than 2580 MBH while the D and E cabinets are 2880 MBH. Each burner may be supplied with 2 stage gas control valves.

ELECTRIC HEAT

Electric resistance heating coils are open type with low watt density nickel chromium elements. The heating modules are 40 KW, for up to 480 KW of heating capacity, with individual circuit fusing and a manually reset high temperature limit switch.

HOT WATER HEAT

Hot water coils are constructed of 1/2" seamless copper tubing mechanically expanded to bond with the aluminum fins. Tube sheets are constructed of 16 GA galvanized steel and extruded holes

SUPPLY FAN QUANTITY

RL Unit Size	Fan Size				
	270	300	330	365	425
A, B, C	1, 2, 3 or 4	1, 2, 3 or 4	1, 2, 3 or 4	1 or 2	1
D, E	1, 2, 3 or 4	1, 2, 3 or 4	1, 2, 3 or 4	1 or 2	1 or 2

RETURN OR EXHAUST FAN QUANTITY

RL Unit Size	Fan Size		
	36"	42"	48"
A, B, C	1 or 2	1 or 2	1
D, E	1 or 2	1 or 2	1 or 2

for the copper tubing. All headers are constructed of heavy wall copper tubing with either spun or die formed end caps.

STEAM DISTRIBUTION TUBE HEAT

The steam distributing tube coils are constructed of 5/8" seamless copper tubes mechanically expanded to bond with the aluminum fins. A smaller internal tube distributes the steam the entire length of the outer tube to provide maximum freeze protection. Tube sheets are constructed of 16 GA galvanized steel and extruded holes for the copper tubing. All headers are constructed of heavy wall copper tubing with either spun or die formed end caps.

CHILLED WATER COILS

Chilled water coils are constructed of 1/2" seamless copper tubing mechanically expanded to bond with the aluminum fins. Tube sheets are constructed of 16 GA galvanized steel and extruded holes for the copper tubing. All headers are constructed of heavy wall copper tubing with either spun or die formed end caps. Chilled Water coils are available in 4, 6 or 8 rows deep in two different face areas for each cabinet size.

HOT WATER OR STEAM PREHEAT COILS

When job site conditions require, coils are available to precondition the outside air. Hot Water coils are constructed of 1/2" copper tubing while Steam Coils are con-

structed of 5/8" copper tubing with the internal distribution tube design. 1 or 2 row coils may be supplied to match the system requirements.

FLEXIBILITY

The wide range of unit sizes, capacities, airflow rates, as well as, the standard design features and the many available options make the RL Series the wise selection.

A TREND SETTING DESIGN

In the past when greater airflows were required, the diameter of the single plenum fan was simply increased to meet the requirement. This results in higher tip speeds, which also means higher sound levels. With the AAON RL Series, the greater airflow rates can be accomplished with multiple fans of smaller diameter, which inherently will be quieter than a single larger diameter fan. All the fans are also directly driven by the motor, which eliminates the drive belt assembly and associated requirement for maintenance. The entire assembly is then spring mounted to further enhance the vibration isolation and reduce sound transmission.

