

INDOOR PACKAGED EQUIPMENT

COMMERCIAL INDOOR
HEAT PUMPS



RSH & RSV

Water Source Heat Pumps



BY JOHNSON CONTROLS

Performance and dependability in a no-nonsense heat pump.

The R-Series units by SKYMARK are completely self-contained heat pumps. This equipment employs a water-to-refrigerant heat exchanger to extract (heating cycle) or reject (cooling cycle) heat from/to a circulating water-loop.

The high-quality feature set delivers robust construction and reliable performance that exceeds ASHRAE 90.1 requirements. All units are tested and certified by AHRI/ISO 13256-1 and ETL for United States and Canada. Available with an insulated water coil, the R-Series is equally suited for water-loop and low-temperature, geothermal applications.

For commercial installations ranging from schools to multi-story office space, R-Series Water Source Heat Pumps by SKYMARK, with environmentally-friendly R-410A refrigerant, provide the performance and dependability necessary to suit today's demanding installation requirements.

STANDARD FEATURES

Construction

- All cabinets are constructed of heavy gauge galvanized steel
- Duct flanges for return air intake and evaporator discharge are provided with the unit
- Fan orientation is field convertible to side discharge for horizontal units
- Vertical units are designed for free-standing floor mounting
- Convenient indoor access to all parts and service needs
- All 1/2–6 ton units shipped as a factory-charged unitized package
- Units are insulated with 1/2" thick, 2 lb. density acoustic fiberglass insulation
- Units provided with service panels
- Integral duct collar provided on the blower discharge opening

- Steel channel mount for hanger rods or floor mounting
- Standard water heat exchangers with copper inner tube surrounded by a steel outer tube and are rated up to a working pressure of 400 psig
- Water supply, water outlet and condensate drain connections are available via flush-mounted female NPT pipe thread fittings (no back-up wrench required)
- Units are shipped with 1 inch thick throw-away filters

Compressors

- All models utilize hermetic rotary, reciprocating, or scroll type compressors
- Compressors are mounted on rubber isolators to minimize vibration transmission
- Internal overload protection provided
- External high pressure and low pressure cutout switches are included in each compressor control circuit
- Each refrigeration circuit includes an adjustable bi-flow thermal expansion valve (with external equalizer)
- Reversing valve provided

Tonnage Capacities
Horizontal and vertical
models 1/2 – 6 tons





Evaporator and Condenser Coils

- Refrigerant-to-air heat transfer coils are constructed of internally enhanced copper tubes; mechanically bonded to enhanced aluminum plate fins
- Standard coaxial refrigerant to water heat exchangers feature a convoluted inner tube design for high heat transfer efficiency

Fan Assembly

- Forward curved, double inlet and double width direct-drive centrifugal blowers are used for evaporator air movement
- Large diameter wheels are employed to provide required airflow performance at minimum sound levels
- Blower wheels are fabricated of galvanized steel, and employ solid steel shafts supported in permanently lubricated ball bearings
- Fan motors are PSC type, with three minimum speeds with internal thermal overload protection

Refrigerant Circuits

- Available in 0.5, 0.75, 1, 1.5, 2, 2.5, 3, 3.5, 4, 5, 6 tons of cooling
- Each refrigeration circuit includes an adjustable bi-flow thermal expansion valve (with external equalizer), liquid line filter drier, and service gauge ports
- The reversing valve is a pilot operated, sliding piston type with a replaceable magnetic solenoid coil

Electrical/Controls

- Available in 208/230 and 265/277 1-phase, 208/230, 460 and 575 VAC 3-phase
- All units are completely factory wired with all necessary operating controls
- A 24 volt control circuit, with oversized transformer, is provided for field connection
- The reversing valve solenoid coil is energized in cooling mode only
- The unit has a microprocessor-based control system
- The unit operates with conventional thermostat designs
- The unit incorporates a lockout circuit which provides reset capability should any of the following standard safety devices trip and shut off the compressor
 - Loss-of-charge/Low-pressure switch, High-pressure switch
 - Low water temperature, Condensate overflow (provided as standard), and Low voltage (brown-out) protection
- Anti-short cycle timer (ASCT)
- Random start
- The unit has capability to defeat time delays for servicing
- The unit control board has on-board diagnostics and fault code display

Filters

- All models shipped with 1-inch thick medium-efficiency throwaway filters
- Filters are accessible from either side of unit

OPTIONAL FEATURES

Construction

- Corrosion resistant coatings available on evaporator coils
- Stainless steel evaporator drain pan

Refrigerant Circuits

- Corrosion resistant cupronickel heat exchangers
- Available with insulated water coil for low-temperature, geothermal applications

Field Installed Accessories

- Hose kits with available options: stainless steel braided hoses, automatic flow control valves, manual isolation valves, "Y" strainers (w/optional blow down valve), and motorized water valves
- Electronic thermostats, 1 heat/1 cool, non-programmable and 7-day programmable, back-lit display, occupancy sensing cover
- 2" Filter rack w/duct collar



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