

INDOOR PACKAGED EQUIPMENT

COMMERCIAL INDOOR  
HEAT PUMPS



R\*H & R\*V

# Water Source Heat Pumps



# Performance and dependability in a no-nonsense heat pump.

The R-Series units by Johnson Controls 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. Available with an insulated refrigerant-circuit, 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 Johnson Controls 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
- 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 equipped with lifting handles for ease of removal and handling
- Integral duct collar provided on the blower discharge opening

- Steel channel mount for hanger rods or floor mounting
- Standard coaxial refrigerant to water heat exchangers feature a convoluted inner tube design for high heat transfer efficiency
- Standard water heat exchangers are 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 female pipe thread fittings
- Units are shipped with 1 inch thick throw-away filters

## Compressors

- All models utilize hermetic rotary or reciprocating 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)
- Standard time delay relays for anti-short cycle protection
- Reversing valve provided

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





### 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

### Evaporator and Condenser Coils

- Both coils are constructed of internally enhanced copper tubes mechanically bonded to rippled aluminum plate fins
- Evaporator and condenser coils are employed in a draw-through configuration
- Large evaporator coil face area minimizes potential water blow-off
- Evaporator coil has sub-cooling built into the draw-through coil

### 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 noise 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
- Dynamically balanced, belt driven, galvanized blower wheels with variable-pitch motor sheaves allow for easy field adjustment

### Electrical Components

- All units are ETL listed
- All units are completely factory wired with all necessary relays and controls
- A 24-volt control circuit, with oversized transformer, is provided for field connection
- Manual reset high/low pressure cutout provided on each compressor control circuit
- Available in 208/230 and 265/277 1-phase, 208/230, 460 and 575 VAC 3-phase
- Units are designed to operate with a conventional thermostat control interface
- The reversing valve solenoid coil is energized in cooling mode only

### Filters

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

## OPTIONAL FEATURES

### Construction

- Optional discharge plenum is available for vertical R\*V models
- Corrosion resistant coatings available on evaporator coils
- Stainless steel evaporator drain pan
- Corrosion resistant cupronickel heat exchangers
- Insulated water circuit

### Refrigerant Circuits

- Available with insulated refrigerant circuit for low-temperature, geothermal applications

### Controls

- Automatic water flow regulating valves are available as field installed accessories
- Optional condensate overflow switch with an alarm output contact
- Optional remote management package allows the unit to be controlled by an external source