

ELECTRIFICATION WITHOUT COMPROMISE

## AIR SOURCE HEAT PUMP REFRIGERATION

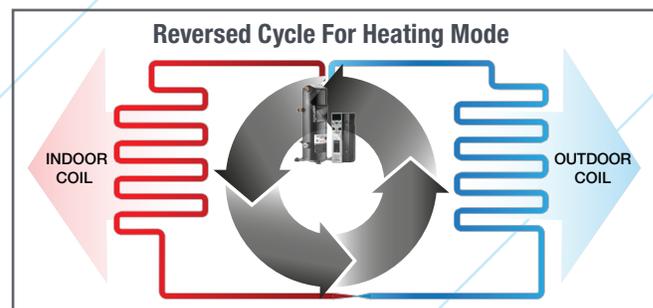
**A highly efficient, custom air source heat pump refrigeration system that provides all-electric heating down to 0 °F ambient with all the unit customization capability you expect from Innovent.**

### INNOVENT'S AIR SOURCE HEAT PUMP — ADVANTAGES

The drive to reduce energy consumption isn't new to Innovent. Since the 1990's we have been a pioneer in the custom energy recovery market, offering owners and consulting engineers multiple ways to recover energy and reduce heating and cooling loads.

With today's market desire to completely eliminate carbon emissions, Innovent is again ready to lead the way in the custom world with our air source heat pump refrigeration offering.

- **HEATING DOWN TO 0 °F.** Lower ambient heating operation allows for more annual hours of operation at high efficiency.
- **STANDARD VARIABLE SPEED COMPRESSORS.** Provide accurate capacity control, efficient part-load operation, and excellent defrost control.
- **FULL UNIT CUSTOMIZATION.** The ASHP refrigeration option is available with Innovent's full suite of customization options, from energy recovery methods to unit layout to construction materials.



*Heat pumps use a reversing valve to reverse the refrigeration system and pull heat from the ambient outdoor air*



## INTEGRAL SECONDARY HEAT

While air source heat pumps are an incredibly efficient way to heat a space, there are conditions where performance may be interrupted.

- Ambient temp below 0 °F
- Defrost cycle to remove frost accumulation on the outdoor coil

The use of secondary heat in these instances — particularly SCR electric resistance heat — ensures consistent control over supply air temperatures. Other secondary heat sources for use when the ambient temperature drops below 0 °F include hot water coils, steam coils, indirect gas furnaces, and direct-fired gas furnaces.

## SYSTEMS WELL SUITED TO AIR SOURCE HEAT PUMP USE

- **DOAS WITH ENERGY RECOVERY.** Innovent's custom ASHP offering pairs well with high-outdoor air DOAS ventilators with integral air-to-air energy recovery.
- **PACKAGED ROOFTOP (10-20% OA).** Low-outdoor-air packaged rooftops can be customized with Innovent's ASHP system for use in a wide range of comfort cooling/heating applications.

PRODUCT SCOPE/SUMMARY	
ITEM	DESCRIPTION
Nominal capacity	6 tons to 120 tons
Minimum ambient temperature (heating)	0 °F
Minimum mixed air temperature (heating)	30 °F
Circuiting	1 to 8 circuits
Compressors	Variable speed
Secondary heat	Highly recommended in ambient conditions below 45 °F
Defrost control	Included, reverse cycling

Please contact your [Innovent Sales Representative](#) with questions about this offering.



BUILT TO ORDER. BUILT FOR EFFICIENCY. BUILT TO LAST.