

SIMCOE²

AIR SOURCE HEAT



TRANSOM

ENVIRONMENTALLY FRIENDLY CO₂

POTABLE WATER HEATER 130° TO 190°F

AIR SOURCED LOW AMBIENT -20°F

CAPACITIES UP TO 700 MBH

MODULAR DESIGN UP TO 8,400 MBH



**WILL GENERATE
190°F WATER AT
-20°F AMBIENT**

- CO₂ REFRIGERANT
- DOUBLE WALLED CONDENSER
- VARIABLE SPEED RECIP COMPRESSOR
- AIR SOURCE TUBE AND FIN COIL
- VARIABLE SPEED EC FANS
- ELECTRONIC TX VALVE
- ELECTRIC DEFROST
- BUILT IN CIRCULATING PUMP
- SMALL FOOTPRINT





The **Simcoe Air Source Heat Pump** is designed with environmentally friendly CO2 refrigerant bringing many advantages to this design. For instance, it can generate very high leaving water temperature over a very large ambient operating range. The heat pump can generate 190°F from -20°F ambient temperature.

Designing a CO2 heat pump means it will operate in the transcritical region. The Simcoe Heat Pump takes all this into account, allowing for all the operational requirements to gain the most of the system.

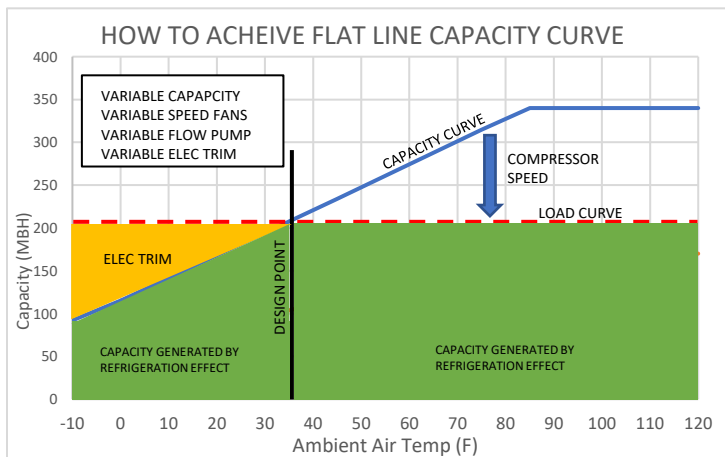
The Simcoe Heat Pump is designed with a double-walled gas cooler so that it can be used directly with potable water. The heat pump does not need a secondary heat exchanger skid, as required by other heat pump manufacturers. The Simcoe Heat Pump has an option for a single-walled gas cooler.

OPERATING RANGE

It is a dedicated air source heat pump specifically designed for high leaving water temperature (130°F to 190°F) potable water over the full air source ambient temperature range (-20°F to 120°F).

The variable capacity and operating capability of a wide ambient range make this a drop-in replacement for conventional boilers.

Multiple units can be used to increase capacity and add redundancy. (N+1). This would generate up to 8,400 MBH.



CAPACITY CONTROL

The Simcoe unit has a variety of methods to control leaving water temperature (LWT).

The compressor is VFD inverter driven with a wide operating range. Allowing the same machine to be applied to a single pass (high ΔT) and modulate to keep a constant leaving water temperature over the full range of ambient conditions.

DEFROST

Defrosting is done by electrical heating rods embedded into the tube and fin coils. This way, the unit does not need to switch to reverse mode during the defrost mode on the outside coil in low ambient conditions. This means there is no cooling affect on the portable water, unnecessarily reducing the capacity of the unit. In addition, using the heating rods, higher temperature can be reached quicker, resulting in a shorter defrost cycle.

The defrost cycle is temperature based with min/max override cycle times.

The electrical defrost is interlocked with the compressor so there is no additional electrical load.



Location of backup heater

BACK UP HEATER

The Simcoe Heat Pump is a true drop-in replacement that will generate 140°F for the full ambient range and then utilize the built-in electrical backup heater option.

The air source heat pump is tied to the ambient temperature. Maintaining constant capacity and leaving water temperature set point is a moving target. The Simcoe heat pump has features that allow it to modulate both at high ambient and low ambient temp.

The heater is integral to the Simcoe unit. It is located downstream of the condenser so if the LWT has not reached the set point the electric heater will top up (yellow section in the graph) the heat to reach the set point. This occurs automatically.

Secondly, if the heat pump is at extremely low ambient, or off for service, then the backup heater will add the full load required.

Performance values shown are for **Double Walled Heat Exchanger**

Model		CWV350			CWV700		
Ambient	F	0	45	75	0	45	75
Nom Heat Cap	MBH	121	226	320	243	451	640
Power	kW	15.9	19.3	21.0	31.8	38.6	41.9
Flow	gph	182	338	480	365	677	960
COP		2.2	3.4	4.5	2.2	3.4	4.5
Water inlet temp range		40° to 90°F					
Water outlet range		120° to 190°F					
Ambient temp range		-20° to 120° F					
Qty of compressors		1			2		
Number of circuits		1			2		
Number of fans		2			4		
Number of pumps		1			2		
Length	in	89			89		
Width	in	34			68		
Height	in	89			89		
Weight	lb	1750			3450		

Conditions: EWT = 60F / LWT = 140F

MAIN COMPONENTS

1. Reciprocating compressor, variable capacity
2. Double walled, brazed plate load coil, stainless steel
3. Fluid line includes flow switch
4. Tube and fin outdoor coil, rifled tubes for greater heat transfer capability
5. Refrigerant line includes all the pressure regulating valves, filter drier, solenoid, and sight glass
6. Electronic TX valve and controller for better control over large operating range
7. Equalizing tank
8. Expansion tank
9. Variable speed EC fans. Two per circuit
10. Electrical defrost
11. Circulating pump
12. Stainless steel heated condensate pan
13. Microprocessor controller c/w temperature and pressure sensors.



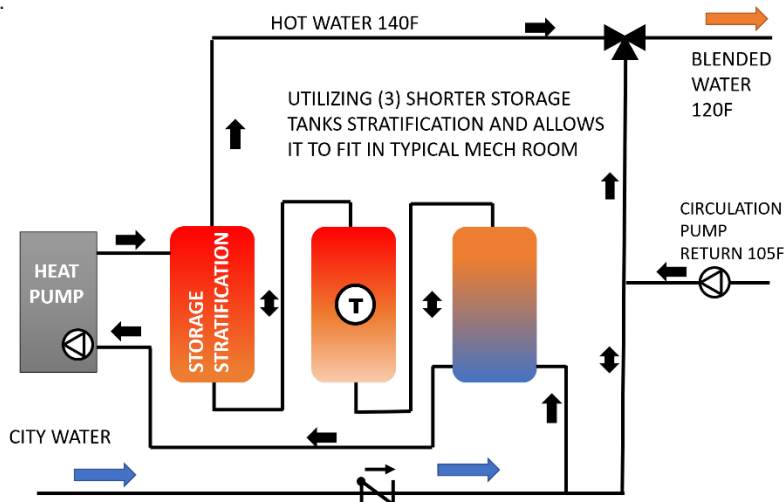
POWER AVAILABLE

208-230/3/60
460/3/60
575/3/60

OPTIONS

1. Back up heater
2. Pump, low or high volume
3. Blower for high static
4. Central controller and sensors
5. Remote controller/display
6. BACnet or Modbus communication
7. Built-in central centrifugal pump
8. Single wall indoor coil
9. Heat tracing of all wetted parts
10. Wind Baffle

The unit is factory charged and tested before shipping. This way the installation only has the final functions remaining to be done at site.



Transcritical CO₂ heat pumps primary application is domestic hot water heating. To take advantage of this, a stratified tank system is to be utilized. The tank system will act as a decoupler so the heat pump and the building system can operate without having to be in sync.

Proper tank sizing can reduce the resulting system load.

Contact your Transom Representative to assist in designing the system and selection.

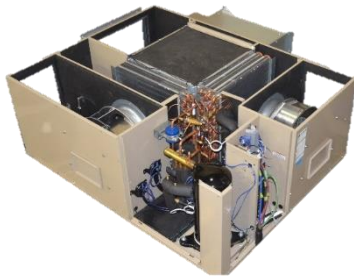


Other Products



TRENT CHILLER

- Capacities available from 2 to 7 ton
- Year-round operation
- Floating head pressure control
- 2 Stage scroll compressors
- Energy savings features
- Low temperature kit included
- Brazed Plate HX
- Built-in centrifugal pump
- Flow switch
- Swept fan blade design
- Variable speed fan



LAMBERT CHILLER

- Capacities available in 20 to 80 ton
- Up to 12 modules
- Redundancy N+1, N+2
- Capacity control
- High turn down
- Brazed plate heat exch.
- Water cooled
- Pre-made modular header
- Scroll compressors, dual circuit
- Smallest footprint



RAWSON CHILLER

- Capacities available from 10 to 80 ton
- Year-round operation
- 2 Stage control
- Energy saving features
- Low temperature kit included
- Brazed Plate HX
- Built-in centrifugal pump
- Flow switch
- Swept fan blade design

TOPAZ MHP

- Heat Recovery and Heat Pump unit
- 500 - 3200 CFM
- Flat Plate HX recovers most of the heat
- Heat Pump generates higher heat
- EC backwards curved blowers
- Tube and fin heat pump coils
- Defrost accessories
- Indoor and Outdoor model



SEVERN WSHP

High Temp Water Sourced Heat Pump

- Capacities up to 1100 MBH
- 180F Leaving Water Temp
- Source range 30 to 110 F
- Cascade system
- Staged capacity
- Potable water or boiler
- Modular configuration
- Reversing
- Front serviceable



SIMCOE ASHP

CO2 High Temp Air Sourced Heat Pump

- Capacities up to 700 MBH
- 190F Leaving Water Temp
- Source range -20 to 120 F
- Variable capacity
- Potable water or boiler
- Modular configuration
- Back up elec heater
- Integral Pump
- High static blower option



HATCH ASHP

High Temp Air Sourced Heat Pump

- Capacities up to 560 MBH
- 140F Leaving Water Temp
- Source range -20 to 120 F
- Variable capacity
- Potable water or boiler
- Modular configuration
- Back up elec heater
- Integral Pump
- Reversing
- High static blower option