Efficiency Ratings and Performance Modeling Inputs for the Daiken AC (Americas), Inc. Altherma Air-to-Water Source Heat Pump System

The Building Energy Efficiency Standards (Standards) require space conditioning and water heating equipment to use specific performance ratings for the equipment. These performance ratings (i.e., efficiency descriptors or indices) are used in performance compliance software to calculate the equipment's overall contribution for showing compliance with the Standards. Depending on system configuration, the Daiken Altherma Air-to-Water Source Heat Pump can provide space heating, space cooling and domestic water heating functions.

The following efficiency descriptors shall be used for any configuration of the Altherma system in all climate zones where the system is installed.

Description	Model No.	CEC Listing Date	Capacity (tons)	Space Heating		Space Cooling SEER	Water Heating Efficiency (E.F.)[1]
				Heating	Combined Hydronic		
				HSPF	E.F.		
Split Altherma LT	ERLQ036BAVJU	3/31/2012	3	11	2.4	13	2.4
Split Altherma LT	ERLQ048BAVJU	3/31/2012	4	11	2.4	13	2.4
Split Altherma LT	ERLQ054BAVJU	3/31/2012	4.5	11	2.4	13	2.4
Split Altherma LT	ERLQ018BAVJU	6/28/2012	1.5	11	2.4	13	2.4
Split Altherma LT	ERLQ024BAVJU	6/28/2012	2	11	2.4	13	2.4
Split Altherma LT	ERLQ030BAVJU	6/28/2012	2.5	11	2.4	13	2.4
MonoBloc Altherma LT	EBLQ036BA6VJU	3/31/2012	4	11	2.4	13	2.4
MonoBloc Altherma LT	EBLQ048BA6VJU	3/31/2012	5	11	2.4	13	2.4
MonoBloc Altherma LT	EBLQ054BA6VJU	3/31/2012	4.5	11	2.4	13	2.4
MonoBloc Altherma LT	EDLQ036BA6VJU	3/31/2012	3	11	2.4	13	2.4
MonoBloc Altherma LT	EDLQ048BA6VJU	3/31/2012	4	11	2.4	13	2.4
MonoBloc Altherma LT	EDLQ054BA6VJU	3/31/2012	4.5	11	2.4	13	2.4

[1]When a separate stand alone water heater is used to provide water heating, the EF for that separate water heater shall be used for performance standards compliance.

Required Installation Criteria—

1. Supplementary electric resistance heating controls that have two capabilities to limit the electric resistance heating and a "smart thermostat" that minimizes the use of supplementary heating during startup and recovery from setbacks (Section 112 (b) and (c) of the Standards).
2. HERS rater field verification of:

a. Refrigerant charge and metering (Reference Appendices, RA3.2), or presence of charge indicator display (Reference Appendices, RA3.4)

b. Air system fan flow and air handler fan watt draw (Reference Appendices, RA3.3)

Note: EER credit cannot be claimed for this equipment

Required Compliance Software Inputs—

The Altherma Air-to-Water Source Heat Pump system is an electric heat pump used for both space conditioning and water heating. Distribution is provided through hot water pipes (radiant) and/or baseboards and fan coils. The following performance modeling inputs are to be used with all other appropriate performance compliance software parameters as specified in the Residential Alternative Calculation Manual (ACM) and those of the computer vendor:

HVAC Space Heating

- Acceptable equipment types —
  - SplitHeatPump: HSPF 11.0
  - CombHydro: Energy Factor (EF) 2.4

HVAC Space Cooling

- SplitHeatPump: SEER 13
- Refrigerant charge (or charge indicator light), watts/cfm and air flow must be HERS rater field verified

HVAC Distribution Type & Location

- Hydronic—radiant floor, radiator(s), or ducted system (same as air distribution)

Water Heating

- Water heater type—separate storage water heater (StoGas, StoElec) or heat pump (StoHP)
- Indirect fired storage tank
- Storage tank wrapped with R-12 insulation or internally insulated to at least R-16