

SHPM SERIES MODULAR WATER SOURCE HEAT PUMP HEAT PUMP WATER HEATER

The State SHPM-810 is a modular water-to-water heat pump water heater designed to be an energy-efficient, zero-emissions solution for your commercial water heating needs.

FEATURES:

- Up to 160°F maximum water temperature
- Ambient operating range of 40-120°F
- Absorbs heat from water sources, including return chiller water, process and groundwater
- Environmentally-friendly R134a refrigerant
- Double wall condenser for potable water heating
- Suitable for indoor and outdoor applications
- BACnet compatible logic controller optional

APPLICATIONS

- Restaurants
- Hotels
- Apartment buildings
- Laundry facilities
- Healthcare facilities
- Schools
- Sports arenas
- Gyms
- Prisons
- Military barracks
- Manufacturing facilities, etc

ONE-YEAR LIMITED WARRANTY

- Backed by 1-year limited warranty, with an option for additional 5-year Extended Compressor Warranty
- For complete warranty information, consult written warranty or go to StateWaterHeaters.com



MODEL SHPM-810



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SPECIFICATIONS

Operating Conditions	Model Number		SHPM-810		
	Recovery Rate †		969 Gal/hr		
	Compressor Type		Scroll		
	Refrigerant		R134a		
	Max Water Temperature		160° F		
	Source Water Range		40° F - 100° F		
	Max Working Water Pressure		150 psig		
Multi-Pass Unit Sizing	Water Connections		2" FPT Copper		
	Condenser Water Flow Rate		150 GPM		
	Condenser Pressure Drop		10.76 ft Head*		
	Evaporator Water Flow Rate		150 GPM		
	Evaporator Pressure Drop		11.19 ft Head*		
	External Head Pressure Allowed by Unit		3.08 ft Head / 50 ft run of 2" pipe		
Single-Pass Unit Sizing	Heated Water Connections		1 1/2" FPT Copper		
	Source Water Connections		2" FPT Copper		
	Average Condenser Water Flow Rate		75 GPM		
	Condenser Pressure Drop		1.92 ft Head*		
	Evaporator Water Flow Rate		150 GPM		
	Evaporator Pressure Drop		11.19 ft Head*		
	External Head Pressure Allowed by Unit		3.46 ft Head / 50 ft run of 1 1/2" pipe		
Unit Specifications	Dry Weight		3,450 lbs		
	Operating Weight		3,900 lbs		
	Standard Sound Rating		83 dB		
	Dimensions (L x W x H)		99 1/2" x 36 1/4" x 67 1/4"		
Power Requirements	Voltage	Compressor LRA	RLA Per Compressor	Wire and Disconnect Sizing ††	
				MCA	MOCP / MFS
	208-230/3/60	560	92.9	250	300
	440-480/3/60	270	49.3	120	125
	575/3/60	198	28.2	96	100

Note: Pump for heated side provided by State. Customer responsible for providing source side pump.

† Water heated from 50° F to 150° F with 75° F entering source water temperature

†† Single point electric service

*XXXX ft Head per module

Legend

LRA: Locked Rotor Amps

RLA: Rated Load Amps

MCA: Maximum Current Ampacity (used for wire sizing)

MOCP: Minimum Overcurrent Protection (minimum disconnect size to be used)



COMMERCIAL

HEAT PUMP WATER HEATERS

PERFORMANCE DATA

Model	Entering Source Water Temp(F°)	Leaving Source Water Temp(F°)	Source Cooling Capacity (Btu/hr)	Entering Heated Water Temp(F°)	Leaving Heated Water Temp(F°)	Supply Heating Capacity (Btu/hr)	Power Input (kW)
SHPM-810	42°F	36	453900	50	57.7	579600	36.84
		36.2	440200	60	67.7	576900	39.99
		36.4	425800	70	77.7	574200	43.38
		36.6	410700	80	87.6	571200	47.01
		36.8	395600	90	97.6	569100	50.85
		37	379400	100	107.6	566700	54.96
		37.2	362500	110	117.6	565200	59.4
		37.4	344100	120	127.6	563100	64.11
		37.7	326400	130	137.6	562500	69.21
		37.7	323200	140	147.6	561600	71.07
	50°F	42.7	534000	50	58.8	661800	37.35
		43.1	518100	60	68.8	656400	41.01
		43.4	502500	70	78.7	652800	44.01
		43.6	485400	80	88.6	648000	47.73
		43.9	460800	90	98.6	643500	51.66
		44.1	442800	100	108.6	639000	55.86
		44.3	428400	110	118.6	634800	60.24
		44.6	405600	120	128.5	630600	65.16
		44.9	382800	130	138.5	627900	70.41
		45.1	365400	140	148.5	624900	75.6
	60°F	52	598200	50	59.7	726900	37.65
		52.3	580600	60	69.6	720300	40.92
		52.5	563400	70	79.6	714900	44.4
		52.8	543600	80	89.5	708000	48.18
		53	524500	90	99.4	702300	52.14
		53.3	504000	100	109.4	696600	56.46
		53.6	482700	110	119.3	690300	60.87
		53.9	457200	120	129.3	683100	66.21
		54.2	435900	130	139.2	678900	71.16
		54.5	411800	140	149.1	674100	75.93
	70°F	61.1	668500	50	60.6	798000	37.95
		61.2	658800	60	70.5	789900	41.25
		61.6	630000	70	80.5	782700	44.79
		61.9	608000	80	90.4	774000	48.6
		62.2	586800	90	100.4	766500	52.65
		62.5	564400	100	110.3	758700	56.97
		62.7	540300	110	120.1	751500	61.62
		63.1	513000	120	130	741600	67.05
		63.5	489900	130	139.9	735000	71.88
		63.8	463300	140	149.9	728100	77.61

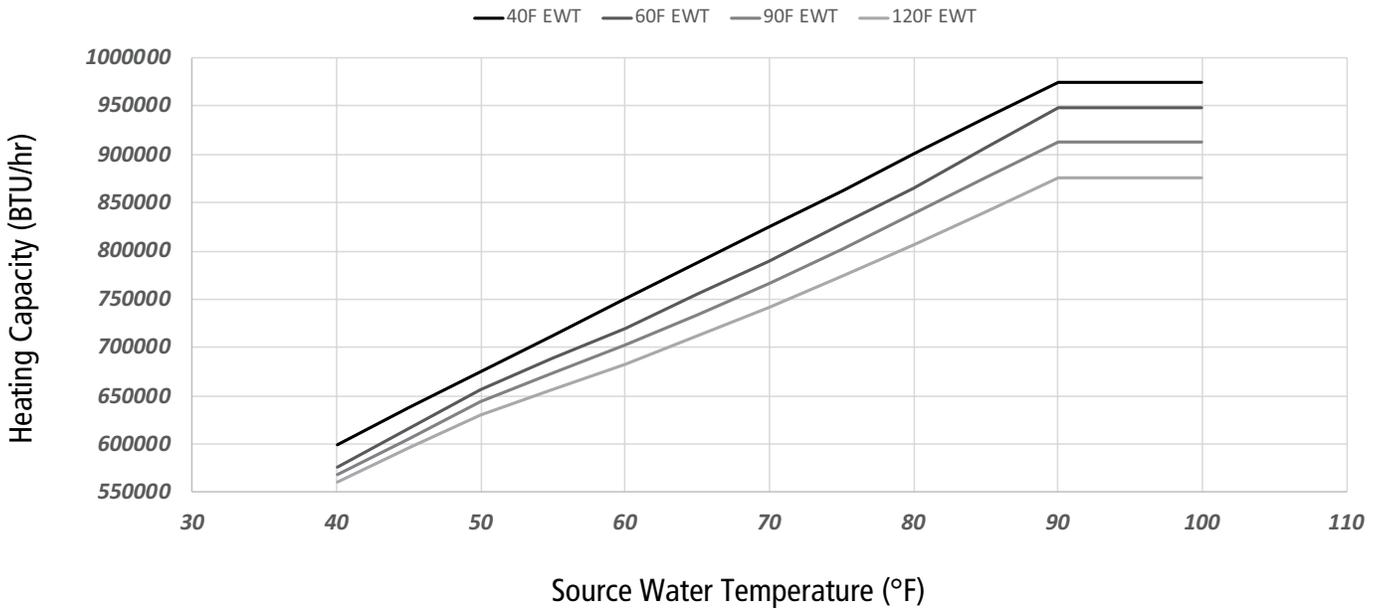


PERFORMANCE DATA

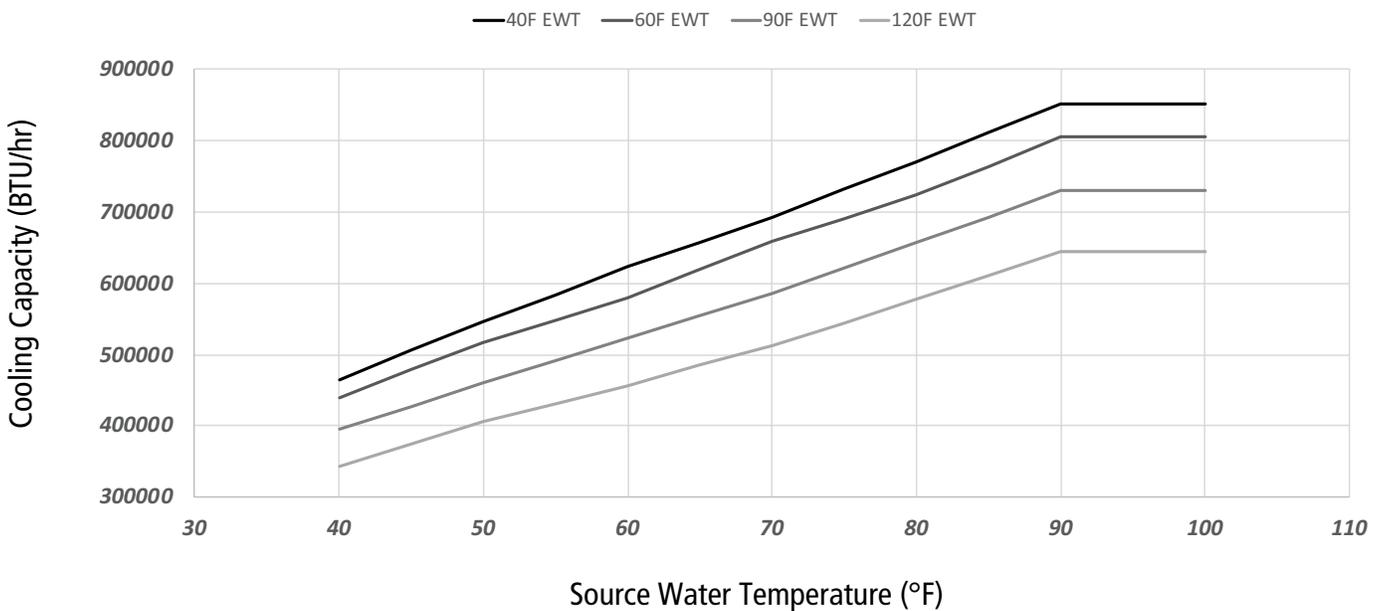
Model	Entering Source Water Temp(°F)	Leaving Source Water Temp(°F)	Source Cooling Capacity (Btu/hr)	Entering Heated Water Temp(°F)	Leaving Heated Water Temp(°F)	Supply Heating Capacity (Btu/hr)	Power Input (kW)
SHPM-810	80°F	70	745200	50	61.7	875400	38.22
		70.3	723600	60	71.5	865500	41.58
		70.6	702700	70	81.4	856800	45.18
		70.9	679600	80	91.3	846900	48.99
		71.2	657700	90	101.2	838200	52.8
		71.7	629600	100	111.1	825900	57.45
		72	604400	110	121	816300	62.13
		72.4	577400	120	131	806700	67.17
		72.8	549000	130	140.9	796500	72.51
	73.1	519800	140	150.7	787200	78.33	
	90°F	78.9	828300	50	62.8	959700	38.49
		79.35	804900	60	72.7	947700	41.88
		79.8	781900	70	82.5	937200	46.83
		80.25	755600	80	92.3	924000	49.38
		80.7	730400	90	102.1	912900	53.4
		81.15	702000	100	111.9	899700	57.9
		81.6	674700	110	121.5	888600	62.49
		82.05	644000	120	131.1	875100	67.65
		82.5	613800	130	140.9	863100	72.9
83		581700	140	150.7	849900	78.99	

PERFORMANCE CHARTS

Heating Capacity vs. Source Water Temperature



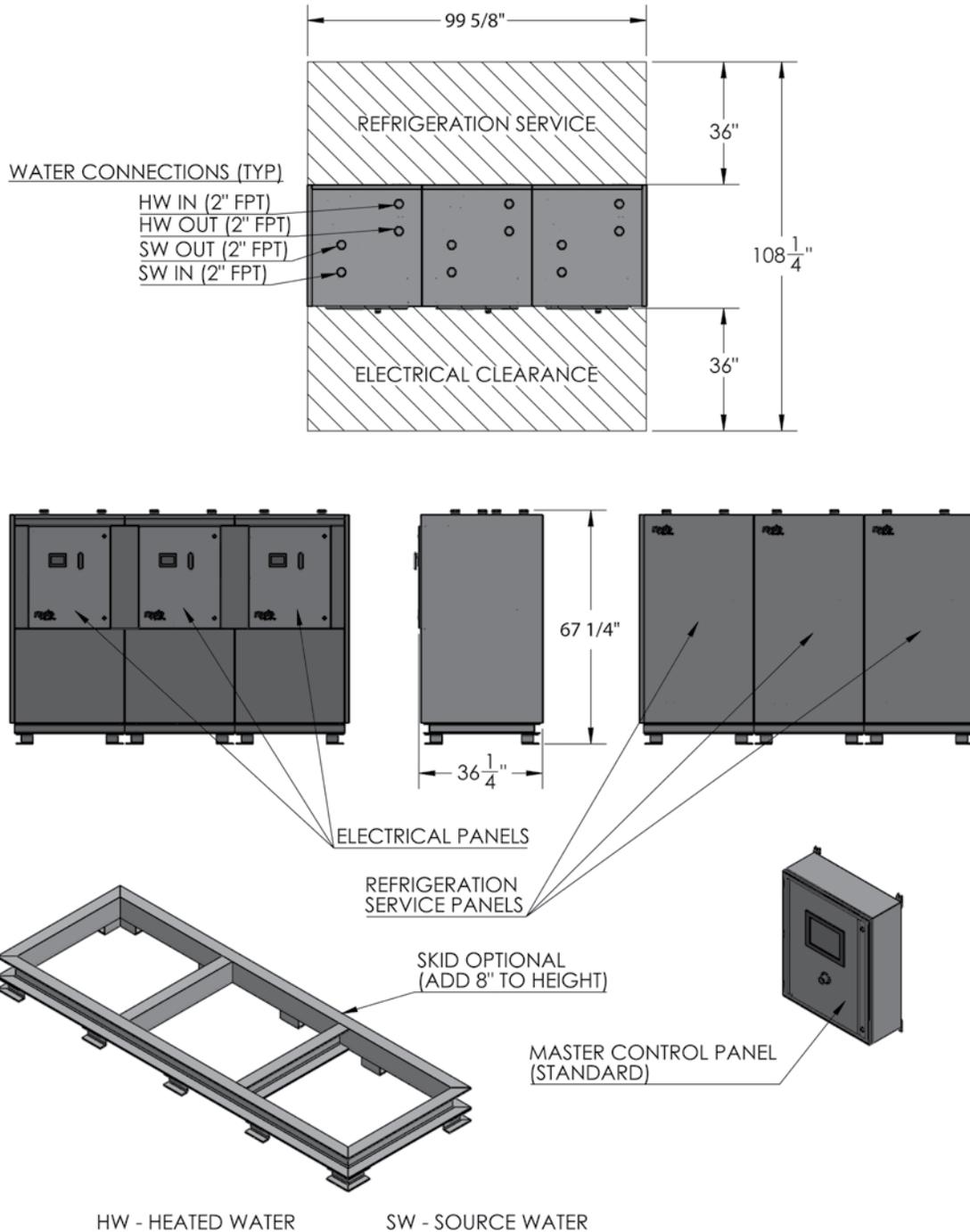
Cooling Capacity vs. Source Water Temperature



Water heated from 50°F to 150°F with 75°F entering source water temperature

DIMENSIONS

Customer specific layout available utilizing a combination of three (3) SHPM-270 modules



NOTE: 36" electrical service clearance per NEC 110.26(A)(1) Working Spaces for "Condition 1."
Check with local codes for additional requirements.



SUGGESTED SPECIFICATION

The HEAT PUMP shall be State Model SHPM-810 having a heating capacity capable of 831,300 BTU/h and cooling capacity of 632,500 BTU/h.

The HEAT PUMP shall have a scroll compressor, factory charged with R134a refrigerant, NSF61-approved stainless steel circulator pump, and double-wall stainless steel condenser for potable water applications. The HEAT PUMP shall be equipped with a stainless steel single-wall heat exchanger evaporator. The complete heat pump assembly shall carry a one (1) year limited warranty.

The HEAT PUMP refrigerant circuit shall contain an adjustable thermal expansion valve, receiver, accumulator, serviceable filter drier and service ports for refrigerant gauges.

The HEAT PUMP shall be certified and listed by TUV to CSA C22.2 No. 236:2015, UL 1995:2015-07 standards. The HEAT PUMP shall be certified for indoor and/or outdoor installation.

The HEAT PUMP shall be constructed with a heavy gauge aluminum jacket assembly and painted on both sides.

The HEAT PUMP shall utilize a 24 VDC control circuit and components. The control system shall have a display (PLC Option) for HEAT PUMP set-up, HEAT PUMP status and HEAT PUMP diagnostics. All components shall be easily accessed and serviceable. The HEAT PUMP shall be equipped with low and high refrigerant pressure switches short-cycle control outlet water temperature sensor and return water temperature sensor.

The HEAT PUMP shall have an optional control for "Cascade" to sequence and rotate while maintaining operation of up to eight HEAT PUMPs of same BTU inputs. The HEAT PUMP shall be capable of controlling a valve (single pass option) that maintains constant delivery temperature to the storage tank. The HEAT PUMP shall have an optional gateway device which will allow integration with BACnet.

The HEAT PUMP shall be equipped with terminal strips for electrical connections. A low voltage connection board shall have connection points for safety and operating controls, i.e., alarm contacts, runtime contacts and tank thermostat. A high voltage terminal strip shall be provided for supply voltage connection. Supply voltage shall be 208-230V/3PH/60Hz, 440-480V/3PH/60Hz, or 575V/3PH/60Hz.

The HEAT PUMP shall be suitable for use with polypropylene glycol, up to 50% concentration. The de-rate associated with the glycol will vary per glycol manufacturer.

STANDARD CONSTRUCTION

The HEAT PUMP shall be constructed in accordance with the code requirements as standard equipment.