

JOB: _____

REPRESENTATIVE: _____

ENGINEER: _____

CONTRACTOR: _____

MODEL NO. SystemM-1

DEVICE INFORMATION

System M is a packaged air-to-water chiller heat pump outdoor unit with HydroBox building + user interface indoor unit.



OPERATING LIMITS

	°F	°C
Heating water outlet temperature range ^{2,3,4}	up to 140 ±4 / above 68	up to 60 ±2 / above 20
Air (heating) operating range ²	-7 to 95	-22 to 35
Cooling water outlet temperature range ³	above 44 ±4 up to 68	above 6.7 ±2 up to 20
Air (cooling) operating range	55 to 113	12.8 to 45

HEAT PUMP SOUND LEVELS

Sound level according to EN 12102 Normal operation / reduced operation ⁷	59 / 57dB(A)
Sound level at a distance of 10 m ⁵ Normal operation / reduced operation ⁷	29 / 27dB(A)

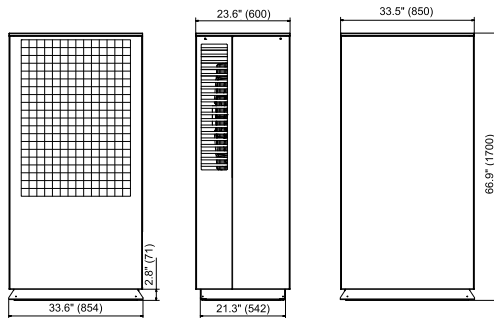
PIPE CONNECTIONS¹⁰

NPT 1 1/4" Heat Pump Outlet, FNPT 1" HydroBox Inlets & Outlets

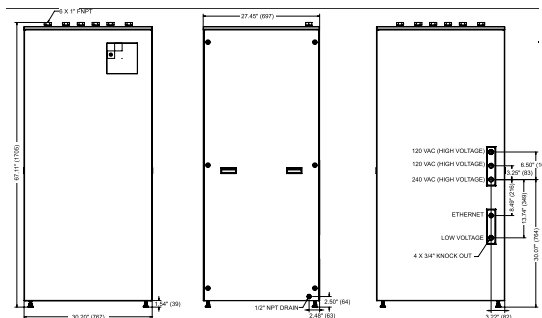
DIMENSIONS

	HEIGHT Inch (mm)	WIDTH Inch (mm)	LENGTH Inch (mm)	WEIGHT lbs (kg)
Heat Pump Outdoor Unit	66.9 (1700)	33.5 (850)	23.6 (600)	385 (175)
HydroBox Indoor Unit	67.1 (1705)	30.2 (767)	27.5 (697)	415 (188)

HEAT PUMP OUTDOOR UNIT



HYDROBOX INDOOR UNIT



ELECTRICAL SPECIFICATIONS

Voltage	Supply voltage, fusing to Heat Pump, MCA	240/2/60, 30A, 24A
	Supply voltage, fusing to HydroBox, MCA	120/1/60, 15A, 8A
	Supply voltage, fusing to buffer tank immersion heater	240/1/60, 35A
	Supply voltage, fusing to DHW tank immersion heater	240/1/60, 30A
Contactor for DHW tank immersion heater		120/1/60, 1A
Degree of protection according to EN 60 529 outdoor unit		IP 24
Heat pump starting current		Inverter
Heat pump nominal power consumption A36/W95 in °F (A2/W35 in °C) / max. consumption ⁵		5,191 BTU/h (1.52kW) / 15,368 BTU/h (4.5kW)
Ethernet cable		Cat 6

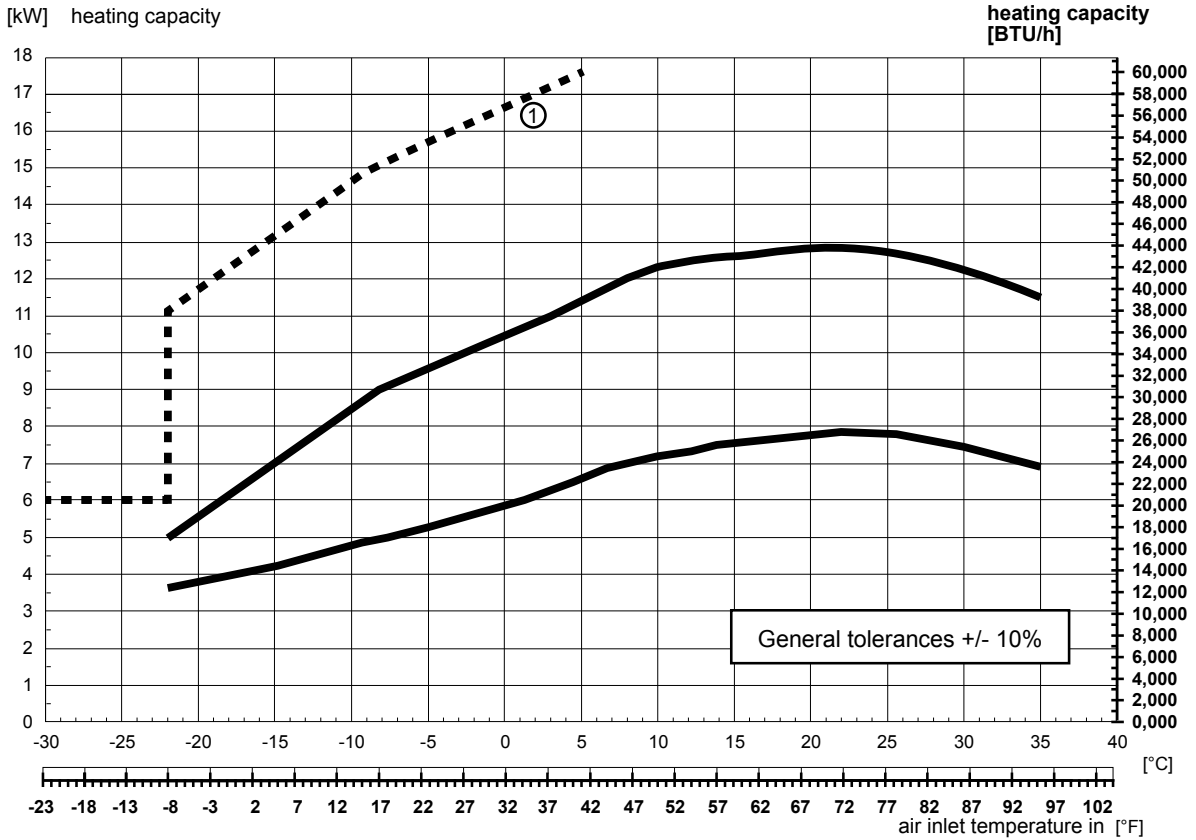
HEAT CAPACITY / COP^{2, 3, 4}

Outdoor Temperature	Water Temperature	kW	BTU/h	COP
47° F (8.3° C)	105° F (40.6° C) ⁶	8.64	29,481	4.38
47° F (8.3° C)	120° F (48.9° C) ⁶	8.36	28,525	3.52
47° F (8.3° C)	140° F (60° C) ⁶	9.50	32,415	2.68
45° F (7° C)	95° F (35° C) ⁵	6.90	23,500	4.60
36° F (2° C)	95° F (35° C) ⁵	6.00	20,500	4.00
19° F (-7° C)	95° F (35° C) ⁵	9.00	30,500	2.80
17° F (-8.3° C)	105° F (40.6° C) ⁶	5.26	17,948	2.76
17° F (-8.3° C)	120° F (48.9° C) ⁶	6.24	21,292	2.33
17° F (-8.3° C)	140° F (60° C) ⁶	6.15	20,985	1.85
5° F (-15° C)	110° F (43.3° C) ¹²	5.24	17,880	2.21

COOLING CAPACITY / COP / EER^{3, 4, 13, 14}

Outdoor Temperature	Water Temperature	kW	BTU/h	COP	EER
95° F (35° C)	64° F (18° C) ⁵	9.00	30,500	2.80	13.37
95° F (35° C)	45° F (7° C) ⁵	6.50	22,200	2.00	14.91
95° F (35° C)	44 - 54° F (6.7 - 12.2° C) ⁵	8.62	29,413	2.06	9.49
81° F (27° C)	64° F (18° C) ⁵	10.00	34,000	4.00	10.24
81° F (27° C)	45° F (7° C) ⁵	8.00	27,300	3.00	11.08
80° F (26.7° C)	44° F (6.7° C) ⁵	6.46	22,042	3.25	6.83
65° F (18.3° C)	44° F (6.7° C) ⁵	5.80	19,790	3.91	7.02
55° F (12.8° C)	44° F (6.7° C) ⁵	6.12	20,882	4.37	13.60

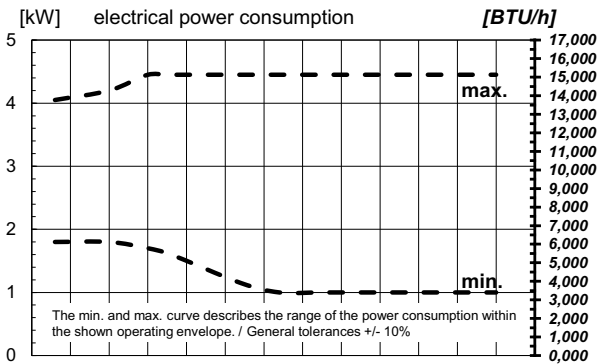
CHARACTERISTIC CURVES HEATING



Heating capacity:

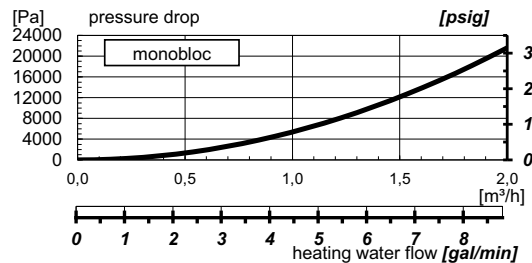
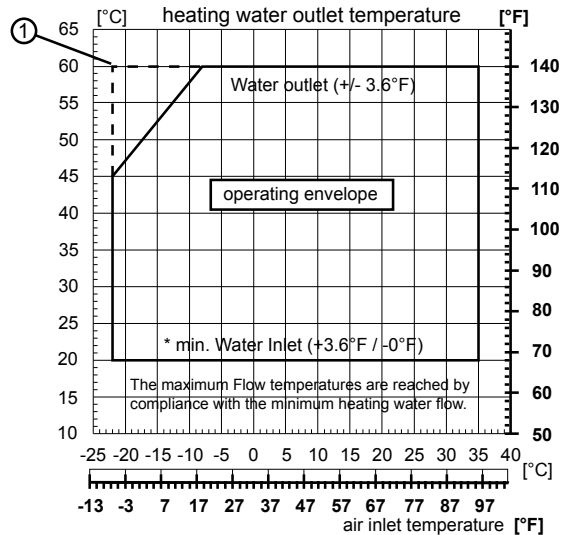
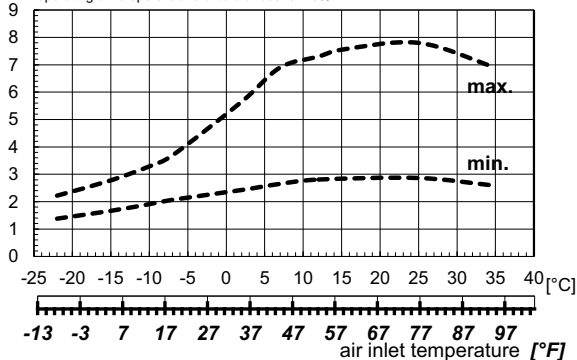
The min. and max. describes the range of the heating capacity within the shown operating envelope

Volume flow: 1.4 m³/h (6.16 gal/min)

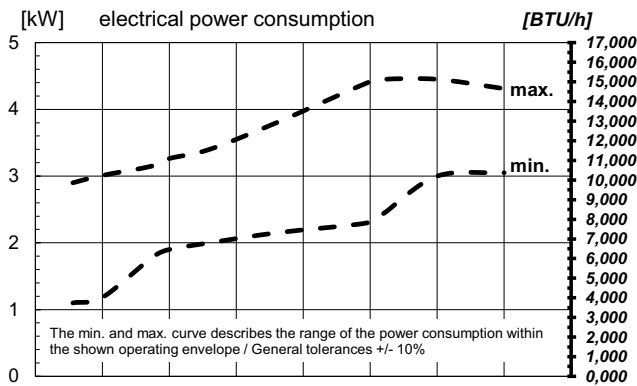
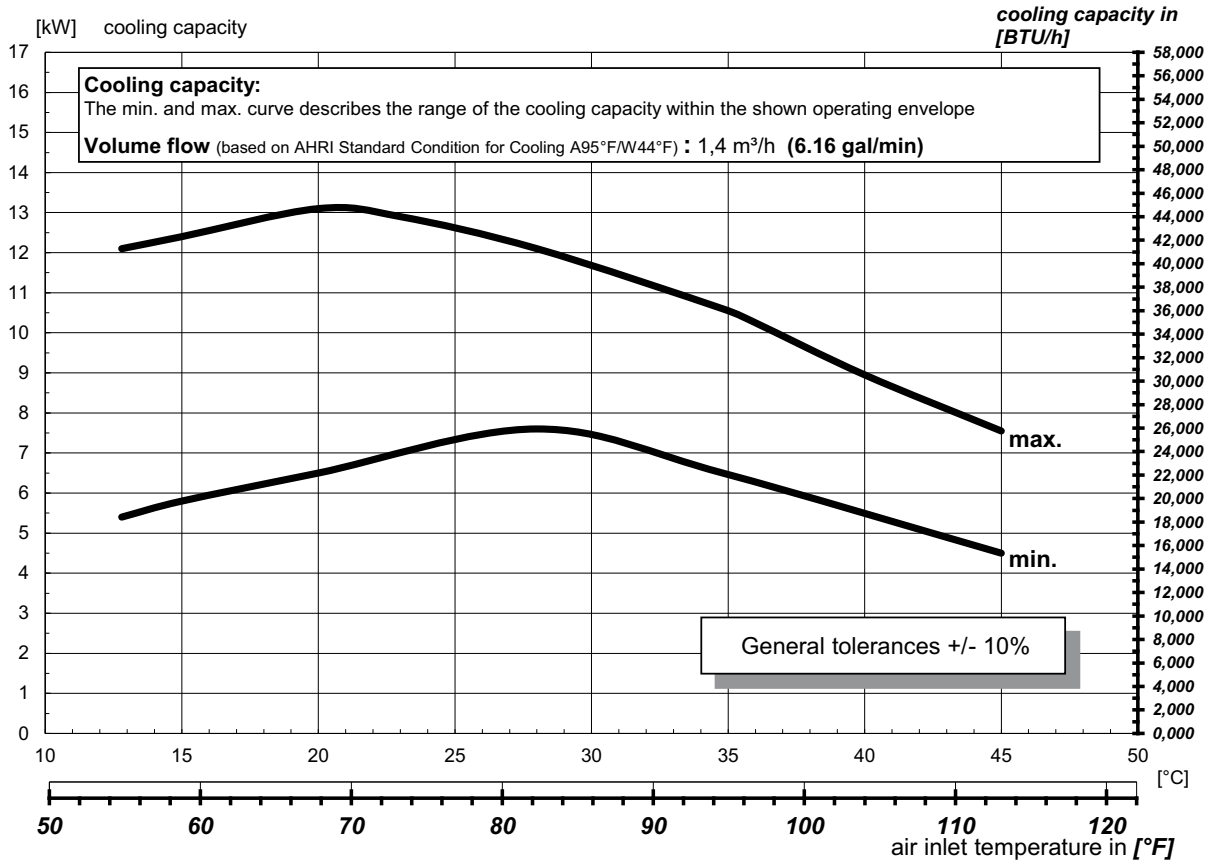


Coefficient of Performance (COP)

The min. and max. curve describes the range of the COP within the shown operating envelope. / General tolerances +/- 10%

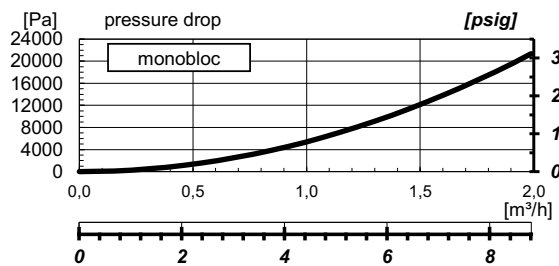
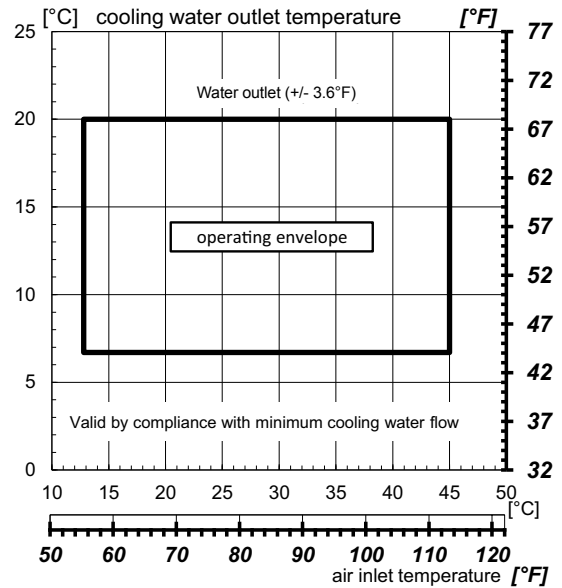
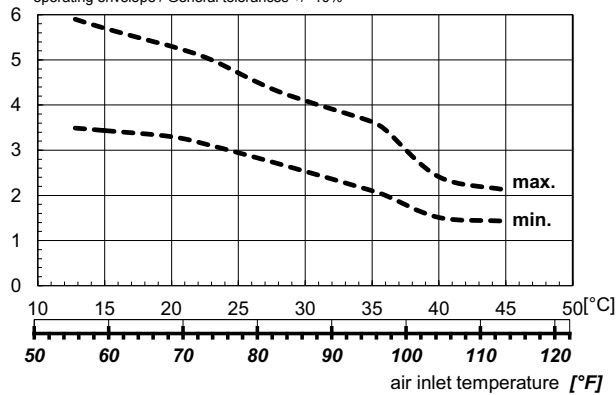


CHARACTERISTIC CURVES COOLING



Coefficient of Performance (COP)

The min. and max. curve describes the range of the COP within the shown operating envelope / General tolerances +/- 10%



FOOTNOTES

1. A minimum distance of 12 kilometers (7.5 miles) to the coast line or polluted air with chemicals (e.g. in the nearness of livestock breeding, hot springs, etc.) has to be observed.
2. For air temperatures between -22 °C (-7 °F) and -5 °C (23 °F), flow temperature increasing from 45 °C (113 °F) to 60 °C (140 °F).
3. For details see performance curves; General tolerance for heating or cooling capacity, power consumption, coefficient of performance $\pm 10\%$; General tolerance for temperature conditions $\pm 2K$.
4. By usage of antifreeze mixture the shown capacities will decrease at 20 vol% approx. 12 %. The coefficient of performance will decrease at 20 vol% approx. 8 %, at 39 vol% approx. 15 %. By usage of antifreeze mixture the shown pressure drop will increase at 20 vol% approx. 10 %, at 39 vol% approx. 30 %. By usage of antifreeze mixture the pumps may deliver a higher flowrate as shown above, at 20 vol% by 5 %, at 39 vol% by 10 %.
5. These data indicate the size and capacity of the system according to EN 14511. For an analysis of the economic and energy efficiency of the system, other parameters, in particular the defrosting capacity, the bivalence point and regulation, should also be taken into consideration. These figures are only achieved with clean heat exchangers. Information on maintenance, commissioning and operation can be found in the respective sections of the installation and operating instructions. The specified values, e.g. A2 / W35 (A36 / W95 in °F), have the following meaning: outside air temperature 2 °C (36 °F) and heating water flow temperature 35 °C (95 °F).
6. These data indicate the size and capacity of the unit following the AHRI Standard Rating Condition 550/590 (I-P)-2018 from page 8 - table 1. For an analysis of the economic and energy efficiency of the system, other parameters, in particular the defrosting capacity, the bivalence point and regulation, should also be taken into consideration. These figures are only achieved with clean heat exchangers.
7. The heat output and COP is reduced by approx. 5 % in lower operation.
8. The specified sound pressure level represents the free sound area level. The measured value can deviate by up to 16 dB(A), depending on the installation location.
9. Note that additional space is required for pipe connections, operation and maintenance.
10. The piping between the heat pump and HydroBox to be 1" minimum pipe. 1 1/4" connection provided at heat pump outlet to ease size reduction (i.e. 1 1/4" thread to 1" press union) to your choice of pipe material and preferred connection method.
11. The heat circulating pump and the heat pump controller must always be ready for operation.
12. These data indicate the size and capacity of the heat pump following the Condition of "Efficiency Vermont" A5/W110 in °F 12.
13. The maximum sound power level under full load can increase by up to 5 dB(A).
14. EER=BTU/h / power input (wh)
15. When referring to difference in temperature (Delta T); 1K = 1.8° F difference.

See *Installation & Operating Instructions (Doc #802-001)* for complete device information and installation clearances.

COMMENTS