Powered By Glen Dimplex

System M

The ideal solution for homeowners who want to reduce their carbon footprint while increasing their indoor comfort.

System M is a radically innovative air-to-water heat pump system that provides comfortable, efficient heating, cooling, and plenty of domestic hot water to homeowners without the use of fossil fuels — so it doesn't create CO_2. This complete, packaged system is simple to install, simple to operate, and a simply unique solution for low-carbon heating and cooling.

Simply put, System **M** is a **M**ilestone. System M also enables the addition of even more comfortable heating and cooling options, like radiant floor heating, towel warmers, or integration into a central cooling system.

Taco Comfort Solutions®
A Taco Family Company

Effective Date: July 15, 2022
Document #: 800-001

Outdoor Heat Pump

- Inverter-driven, variable speed scroll compressor with wide operation range & superior reliability
- High volumetric efficiency (HVE) valve boosts heating and cooling efficiency
- Maintenance-free, variable speed, ECM fan motor
- Sleek, award-winning design
- Tangential air discharge and innovative fan blade ensure whisper quiet operation and optimal air flow
- No refrigerant license needed
- Integrates seamlessly with indoor HydroBox

- Monobloc design
  - Encloses all heat pump components
  - Factory sealed R410A refrigerant in outdoor unit
  - Heating/ cooling transferred to indoor unit via water
- Manufactured in Germany by Glen Dimplex – the world's largest manufacturer of electrical heating appliances

Technical Specs

- 44,000 BTU/h heating capacity
- 3-1/2 tons cooling capacity
- Max COP > 4
- Outdoor unit produces 29 dB(A) @ 10m; equivalent to a whisper
- Outdoor temperature range: -7°F (-22°C) to 113°F (45°C)

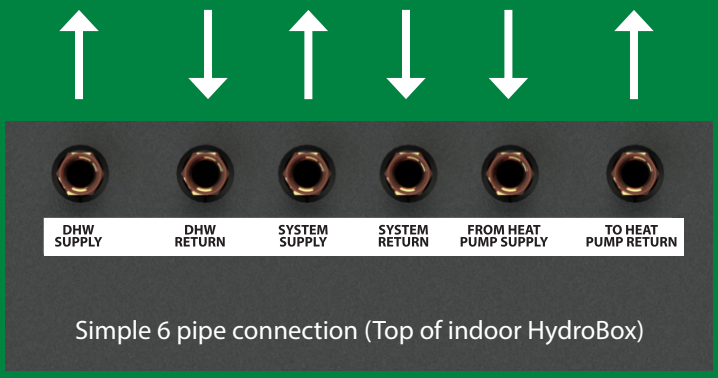
Optional 85 Gallon Indirect Domestic Hot Water Tank

- All stainless steel construction
- Optimized large coil heating surface specifically designed for use with heat pumps
- Over 2" of R-12 insulation results in less than 1°/hour heat loss
- Thermoplastic jacket won't dent or corrode
- First hour rating of 168, continuous rating of 92 (gal/hr)
- Integrated 4.5 kW immersion element provides temperature boost for thermal disinfection & back-up heat source

Indoor HydroBox

- Fully assembled indoor HydroBox cuts installation time in half by eliminating the work to design:
  - Hydraulic separation
  - Buffer tank integration
  - Air elimination
  - Proper flow to heat pump
  - Isolation valves
  - Expansion tank & pressure relief
  - DHW priority & bypass of buffer tank
  - Variable speed control of the ECM circulators
- Easy installation; just 6 pipe connections
- Fully insulated piping for chilled water installations
- Simplified, roomy wiring hub
- Internet ready – just plug the unit into the home's router
- Intuitive touch screen display

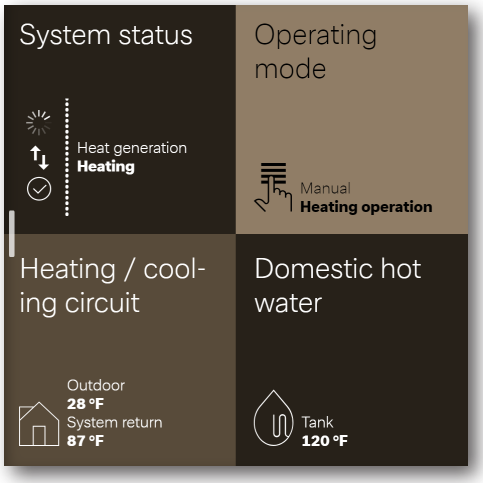
- Easy access to all components if servicing is required
- Integrated 30-gallon buffer tank:
  - Allows system to always be ready for a heating or cooling demand
  - Provides flywheel for large mass radiant systems
  - Makes the outdoor heat pump run more efficiently
  - Reduces short cycling due to micro loads
  - Integrated 6 kW immersion heater extends heat pump operating range

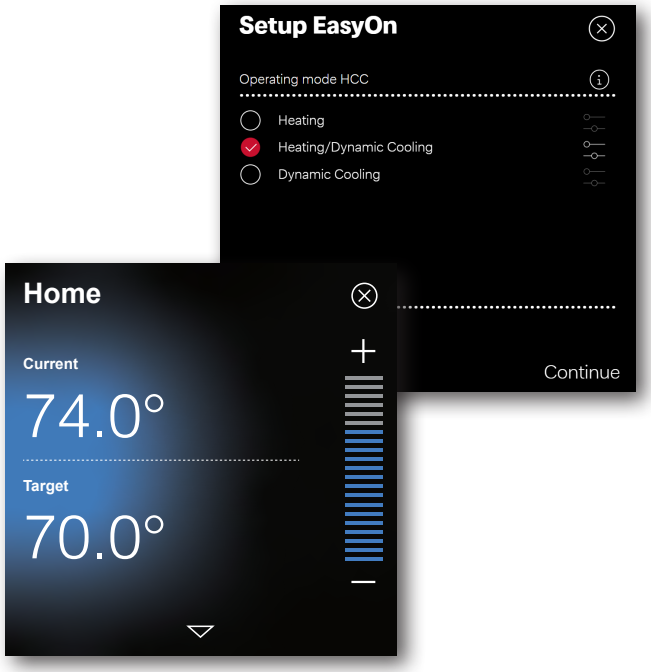


Simple 6 pipe connection (Top of indoor HydroBox)

User Access, App & Control Functionality

- Multi-tier control access (contractor vs homeowner access)
  - Contractor access to advanced diagnostic data
  - Email or app notification of faults
  - Remote access allows Taco technical support to provide enhanced troubleshooting and view system performance history
- Software updates – a connected unit means it always has the latest features and upgrades
- Commissioning report generated upon system start-up
- All changes made to system settings are tracked
- Displays operating data, status of all inputs and outputs
- Meters thermal energy
- EasyOn setup – gets the heat pump up and running quickly and easily
- Toggles available to test pumps and fan operation
- Variable speed control output for an external system pump
- Weather compensation (outdoor temperature) or fixed setpoint operation matches all types of heating and cooling system designs
- Set schedules for night setback, DHW production and thermal disinfection
- DHW self-learning function further optimizes domestic hot water efficiency
- Integrated freeze protection
- Smart grid enabled – allows customers to take advantage of time-of-use utility incentive programs
- Optimized control algorithms based on years of in-field usage means the variable speed pumps, fan and compressor work in harmony to optimize efficiency and comfort delivery





Submittal Data

DEVICE INFORMATION

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

Intertek 4001998

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[8] *Normal operation / reduced operation*[7]	29 / 27dB(A)

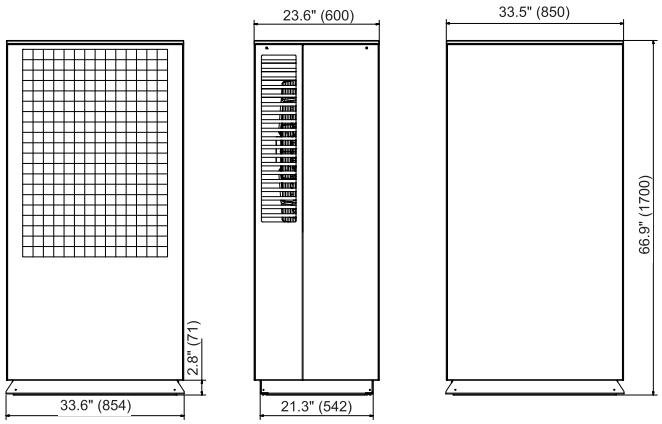
PIPE CONNECTIONS [10]

NPT 1 ¼" Heat Pump Outlet, FNPT 1" HydroBox Inlets & Outlets

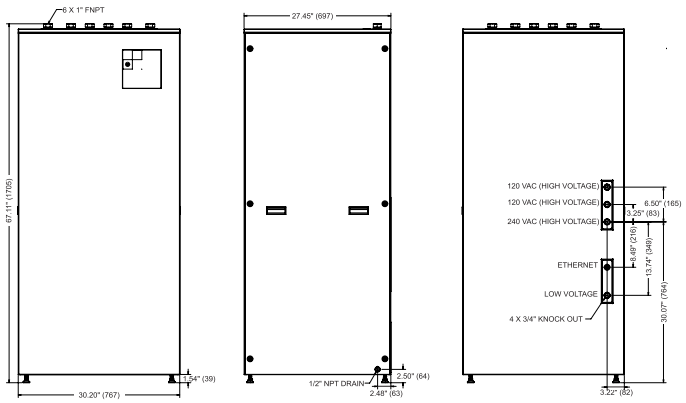
DIMENSIONS

	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

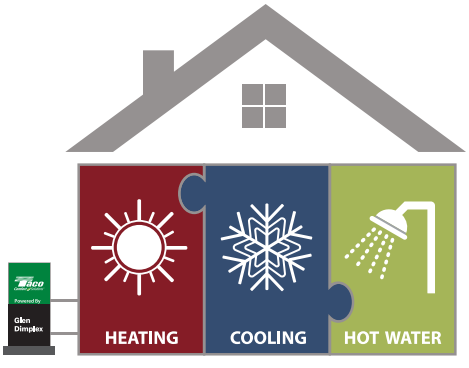
Voltage	**Supply voltage, fusing to Heat Pump, MCA**	240/2/60, 30A, 24A
	Supply voltage, fusing to HydroBox, MCA	120/1/60, 15A, 8A
	Supply voltage, fusing to buffer tank immersion heater	240/1/60, 35A
	Supply voltage, fusing to DHW tank immersion heater	240/1/60, 30A
Contactor for DHW tank immersion 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

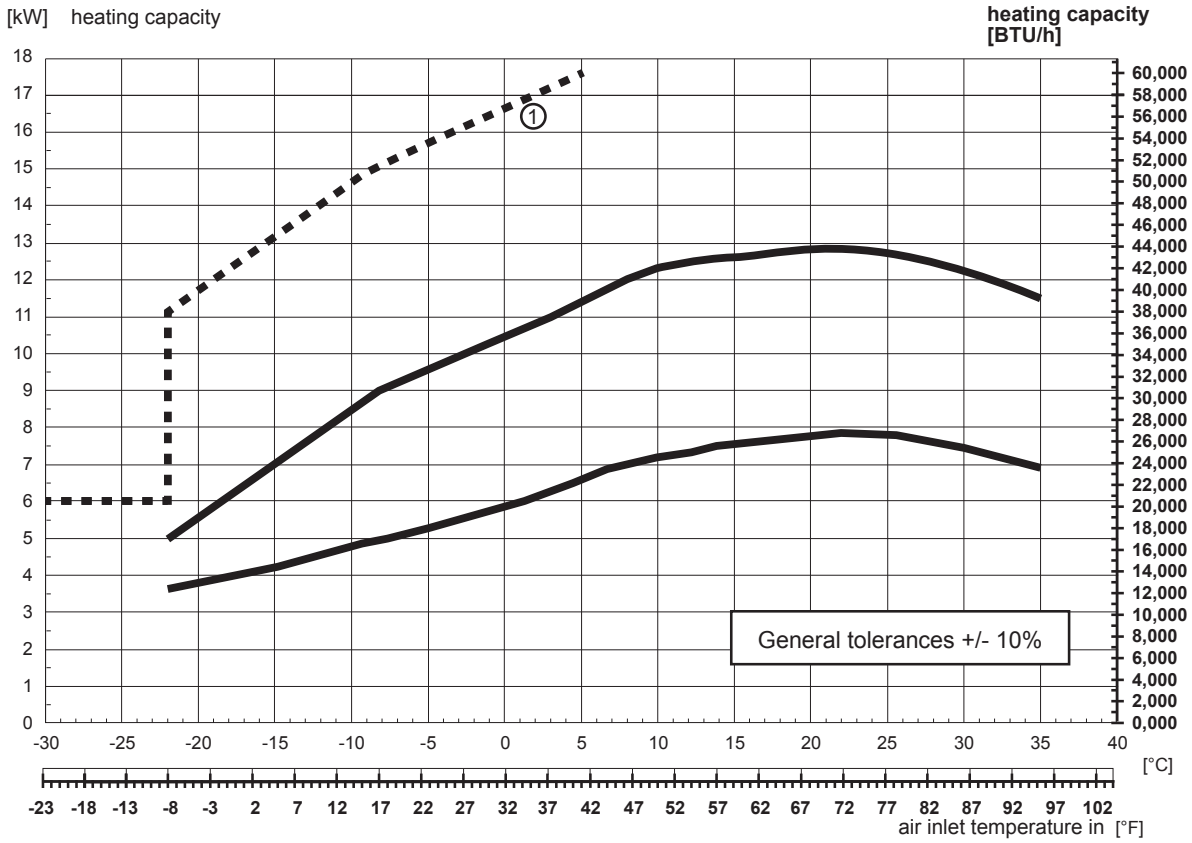
COOLING CAPACITY / COP / EER [3, 4, 13, 14]

Outdoor Temperature	Water Temperature	kW	BTU/h	COP	EEP
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)[6]	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)[6]	5.80	19,790	3.91	7.02
55° F (12.8°C)	44° F (6.7° C)[6]	6.12	20,882	4.37	13.60



See submittal 801-002 for optional System M Water Heater

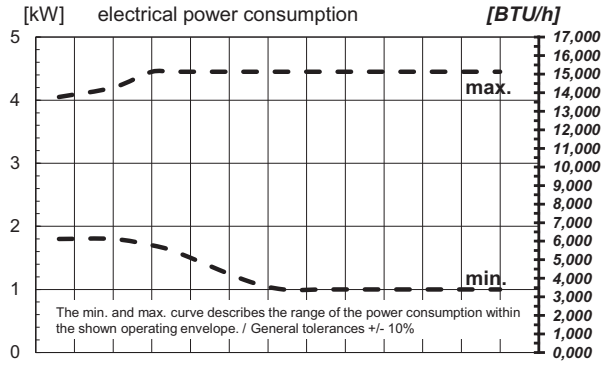
CHARACTERISTIC CURVES HEATING

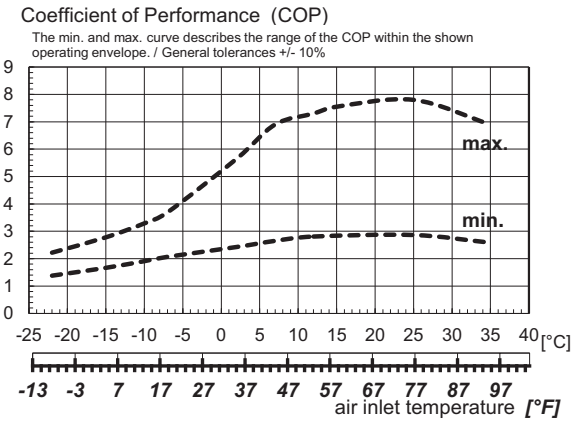


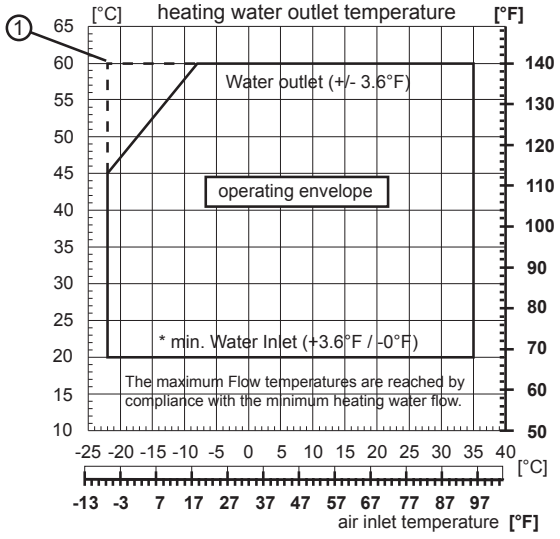
Heating capacity:
The min. and max. describes the range of the heating capacity within the shown operating envelope

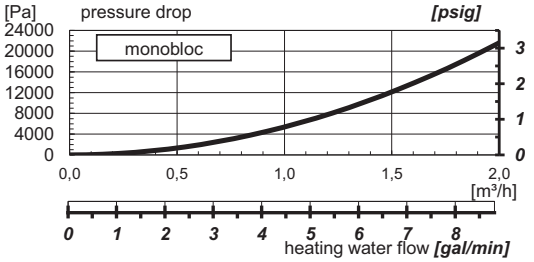
① Max with 6kW buffer tank immersion heater activated

Volume flow: 1.4 m³h (6.16 gal/min)

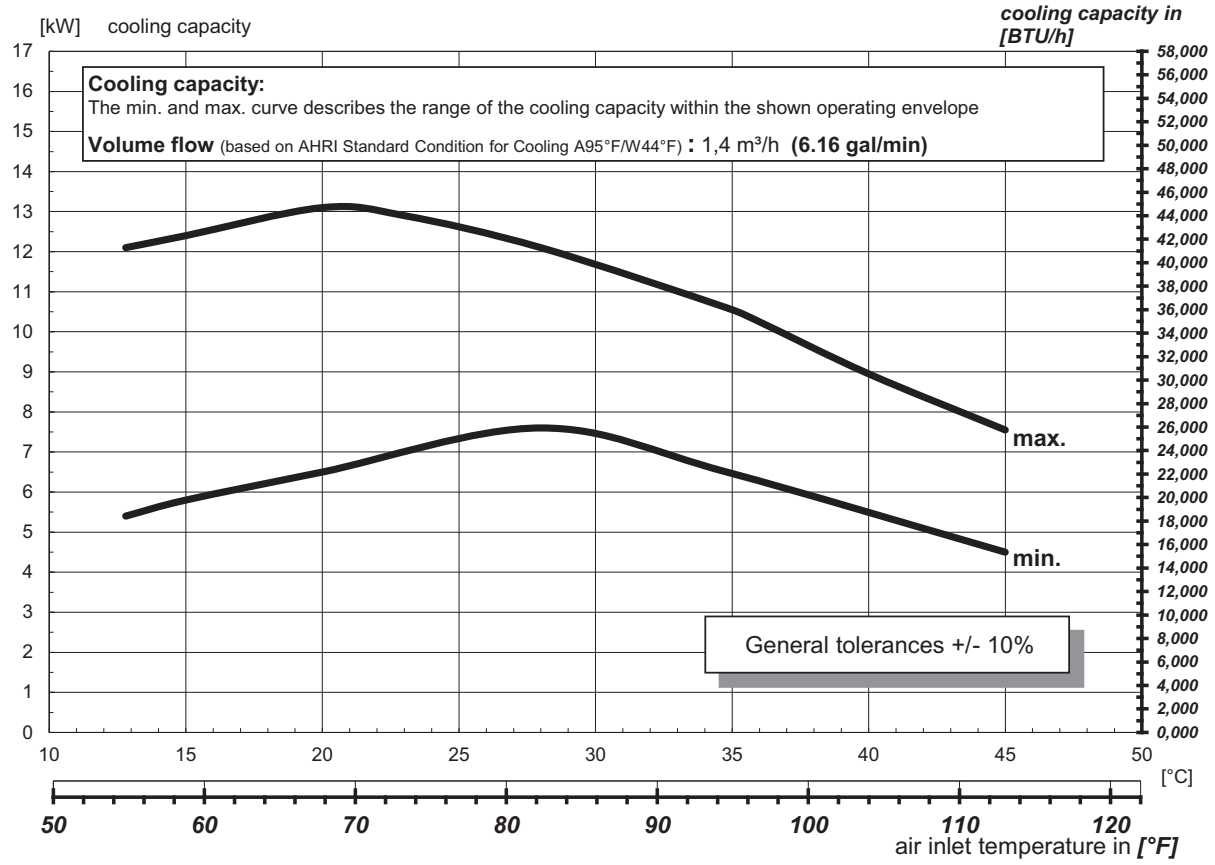


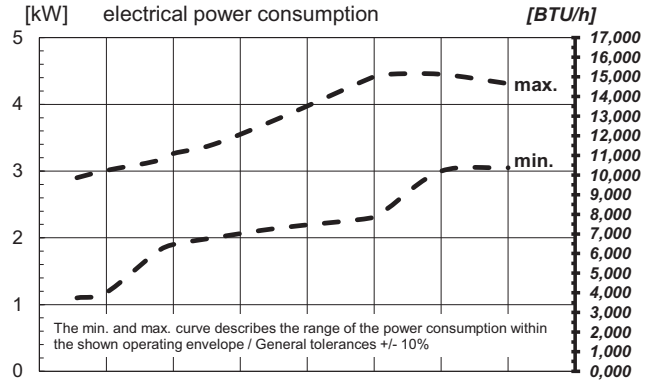






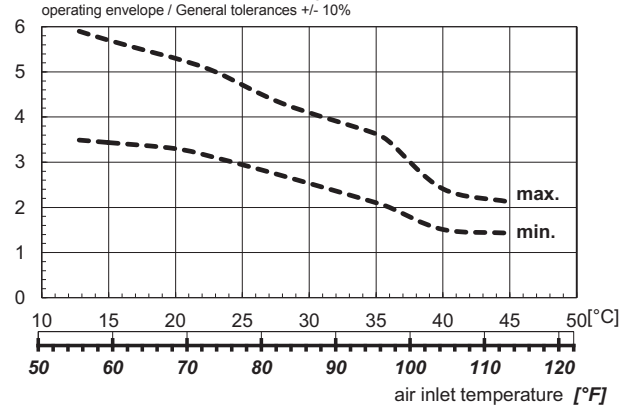
CHARACTERISTIC CURVES COOLING

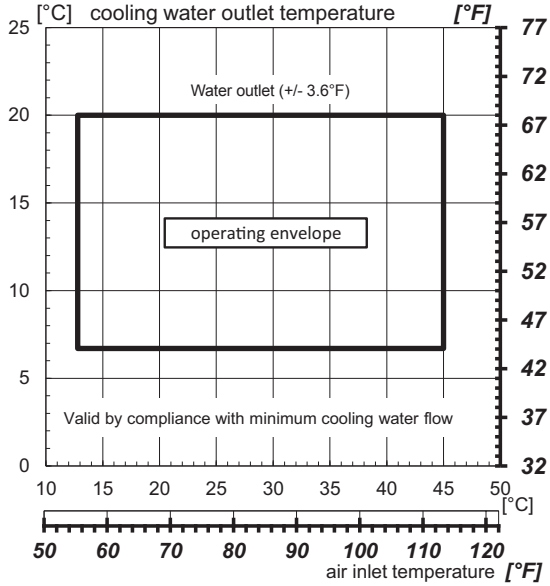


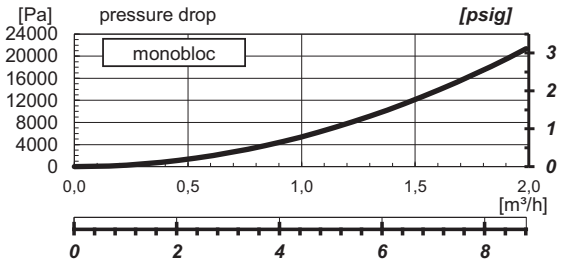


Coefficient of Performance (COP)

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



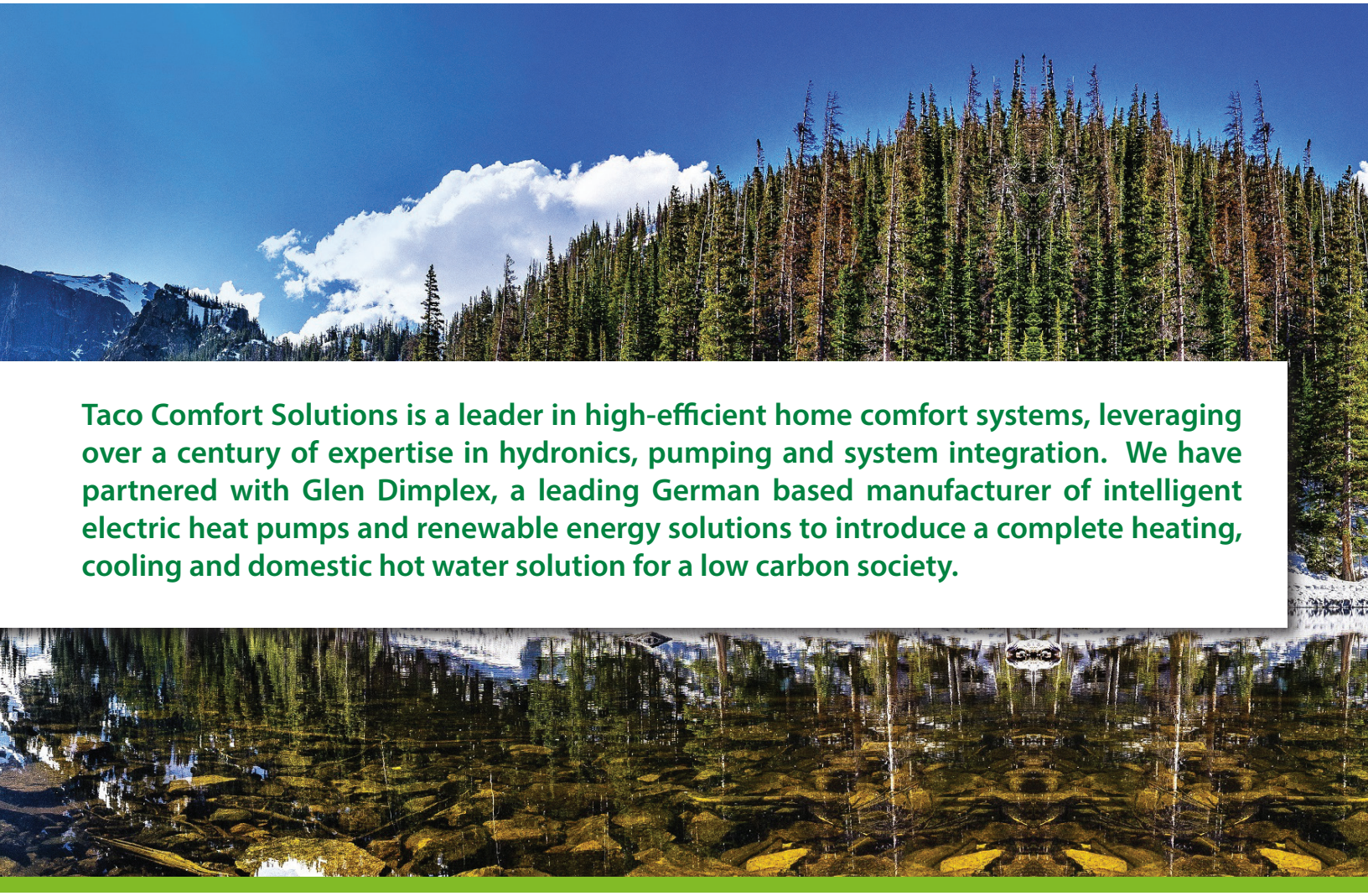




FOOTNOTES

1. Do not locate where heat pump is subjected to a direct salty atmosphere or where the air is polluted with metals, powder like substances or chemicals (e.g. in the nearness of livestock breeding, hot springs, etc.).
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 ±10 %; General tolerance for temperature conditions ±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.



Taco Comfort Solutions is a leader in high-efficient home comfort systems, leveraging over a century of expertise in hydronics, pumping and system integration. We have partnered with Glen Dimplex, a leading German based manufacturer of intelligent electric heat pumps and renewable energy solutions to introduce a complete heating, cooling and domestic hot water solution for a low carbon society.

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Powered By
Glen Dimplex

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