

Designed to heat molds while maintaining a consistent temperature.

Comet's CTM-W series water heaters have both standard and high temperature models to heat up the mold and maintain a constant temperature. High temperature water from the mold is returned to the cooling tank and cooled by either indirect cooling (for high temperature and high temperature plus pressure models) or direct cooling (for standard models). The water is then pressurized by the high pressure pump, sent to the heating tank, and then to the mold maintaining a constant temperature. The newly applied temperature controller can maintain an accuracy of $\pm 33^{\circ}\text{F}$ (0.5°C).

Standard Features

- 3.2" LCD controller for easy operation.
- Equipped with a 7-day automatic start/stop timer, plus the temperature can be converted between $^{\circ}\text{F}$ and $^{\circ}\text{C}$.
- PID multi-stage temperature controller maintains a mold temperature accuracy of $\pm 33^{\circ}\text{F}$ (0.5°C).
- High efficiency stainless steel water cycle pump precisely maintains temperature control and high efficiency heat exchange of both molds and mold loops with small diameters.
- Multiple safety devices including power reverse phase protection, pump overload protection, overheat protection and low level protection that can automatically detect abnormal performance and indicate this via an audible alarm.
- The standard CTM-W can reach a heating temperature of 250°F (120°C), while the CTM-PW can reach a heating temperature of 320°F (160°C).
- Equipped with high pressure protection, safety pressure relief, automatic water supply and air exhaust.
- CTM-PW has indirect cooling making temperature control more precise. The low viscosity of water produces fast heat exchange.
- CTM-PW series has a dependable magnetic pump reducing any possibility of leakage. It is suitable for applications needing long-term heat and temperature maintenance.



CTM-607-W



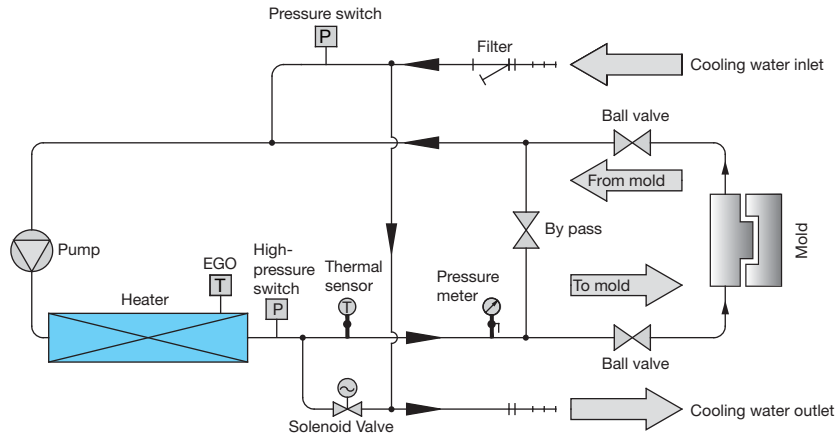
Control Panel

Accessory Options

- Water manifolds and Teflon hose.
- Water removal function of air blowing for standard CTM-W.
- All models can opt for a magnetic pump except for CTM-3650W series.
- RS485 communication function.
- Mold temperature and mold return water temperature display.

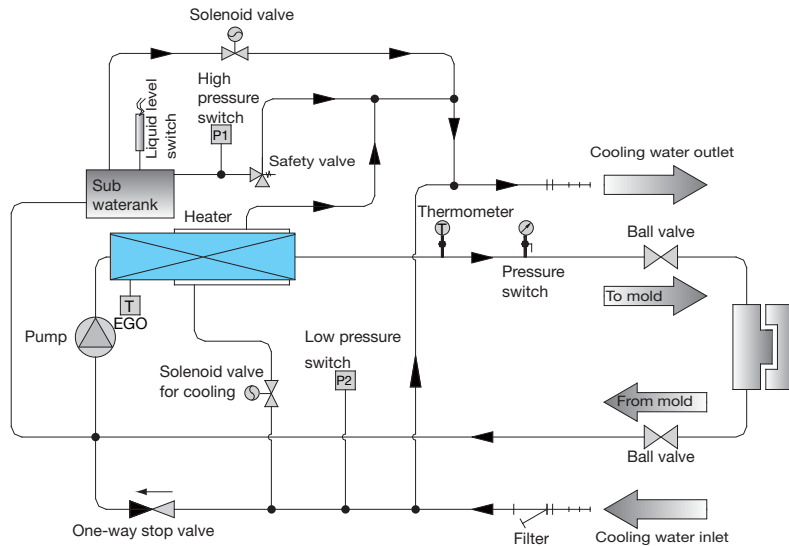
Working Principle

High temperature water returns to the machine and is pressurized by the heater pump. After heating, water is forced to the mold in a continuous loop. During this process, if the water temperature becomes too high, the system activates the solenoid valve to enable cool water to lower the water temperature until it meets the system requirement. If the temperature continues to rise and reaches the setpoint of EGO, the system sounds an audible high pressure alarm and stops operating. If the system pressure is too high (reaching the set value of the high pressure switch), an alarm sounds and the machine stops operation. If cool water pressure fails to reach the set value, the pressure switch sends a water storage signal launching the low pressure alarm and stopping machine operation.



System flow for CTM-W (Direct Cooling)

High temperature water from the mold returns to the pump inlet from the pipeline, where it is pressurized by the pump, conveyed to the heater, heated again, then returned to the mold in a repeating loop. During this process, if the liquid level switch detects that the liquid is lower than the set value, the machine sounds an alarm and stops operating. If the temperature of the water exceeds the set value, the system automatically starts the solenoid valve to let cool water come into the double pipe structure of the heating tank to cool the water. This is how a consistent temperature is maintained. If the temperature continues to remain higher than the EGO set value, the system sounds an alarm and stops operating. When the system pressure exceeds the set value of the high pressure switch, the machine sounds an alarm and stops operating. If the pressure continues rising to the set value of the safety valve, the safety valve will begin to decompress the system.



CTM-PW 320°F (160°C) System Flow Chart

CTM-W Specifications

Model	CTM-607-W	CTM-607-W-D	CTM-910-W	CTM-910-W-D	CTM-1220-W	CTM-2440-W	CTM-3650-W
Max Temperature	248°F (120°C) / 284°F (140°C)						
Pipe Heater (kW)	6	6 x 2	9	9 x 2	12	24	36
Pump Power (kW) (50/60Hz)	0.55 / 0.63	2 x 0.55 / 2 x 0.63	0.75 / 0.92	2 x 0.75 / 2 x 0.92	1.5 / 1.9	2.8 / 3.4	4
Max. Pump Flow (L/min) (50/60Hz)	27 / 30	2 x 27 / 2 x 30	42 / 50	2 x 42 / 2 x 50	74 / 84	90 / 90	100 / 100
Max. Pump Pressure (bar) (50/60Hz)	3.8 / 5	3.8 / 5	5.0 / 6.4	5.0 / 6.4	6.2 / 7.2	8.0 / 10.2	8.0 / 8.0
Heating Tank Number	1	2	1	2	1	2	3
Heating Tank Capacity (L)	3.0	2 x 3.0	3.0	2 x 3.0	3.0	7.4	13.2
Cooling Method	Direct						
Mold Coupling* (inch)	3/8 (2 x 2)	3/8 (4 x 2)	3/8 (2 x 2)	3/8 (4 x 2)	3/8 (4 x 2)	1 (1 x 2)	1 (1 x 2)
Inlet/Outlet (inch)	3/4 / 3/4	3/4 / 3/4	3/4 / 3/4	3/4 / 3/4	1/1	1/1	1/1
Dimensions (mm) (H x W x D)	620 x 320 x 755	655 x 590 x 760	620 x 320 x 745	655 x 590 x 760	630 x 320 x 775	820 x 360 x 937	964 x 467 x 1011
Weight (kg)	55	95	60	105	140	140	150

Notes: 1. D = dual-heating zones, * = options.

- To maintain a stable temp. for heat transfer media 248°F (120°C), cool water pressure should be no less than 2kgf/cm² and no more than 5kgf/cm².
- Pump testing standard: 50/60Hz purified water power at 68°F (20°C). (±10% tolerance for either max. flow rate or max. pressure).
- Power supply: 3Ø, 230/400/460/575VAC, 50/60Hz.
- ** = for heating the machine to 284°F (140°C), cool water pressure should be no lower than 4kgf/cm².

We reserve the right to change specifications without prior notice.

CTM-PW Specifications

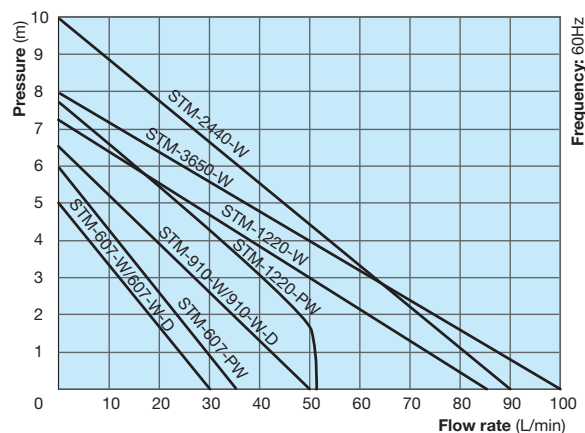
Model	CTM-607-PW	CTM-1220-W
Max Temperature	320°F (160°C)	
Pipe Heater (kW)	6	12
Pump Power (kW) (50/60Hz)	0.55 / 0.63	1.0 / 1.0
Max. Pump Flow (L/min) (50/60Hz)	27 / 30	50 / 50.8
Max. Pump Pressure (bar) (50/60Hz)	4.25 / 5.9	5.8 / 7.77
Heating Tank Number	1	1
Heating Tank Capacity (L)	3.0	3.2
Cooling Method	Indirect	
Mold Coupling* (inch)	3/8 (2 x 2)	3/8 (2 x 2)
Inlet/Outlet (inch)	3/4 / 3/4	3/4 / 3/4
Dimensions (mm) (H x W x D)	670 x 320 x 750	670 x 320 x 900
Weight (kg)	75	80

Notes: 1. PW = high temp., * = options.

- To ensure stable water temperature, cool water pressure should be no less than 2kgf/cm² and no more than 5kgf/cm².
- Pump testing standard: Purified water power at 50/60Hz, 68°F (20°C). (±10% tolerance for either max. flow rate or max. pressure).
- Power supply: 3Ø, 230/400/460/575VAC, 50/60Hz.

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Pump Performance



Reference formula of Mold Controllers model selection

Heater Power (kW) = mold weight (kg) × mold specific heat (kcal/kg °C) × temperature difference between mold and environment (°C) × safety coefficient / heating duration / 860.

Note: 1. Safety coefficient range 1.3~1.5.

Flow Rate (L/min) = heater power (kW) × 860 / [heating medium specific (kcal/kg °C) × heating medium density (kg/L) × inlet/outlet temperature difference (°C) × time (60)]

Notes: 1. Water specific heat = 1kcal/kg°C
Heating medium oil specific heat = 0.49kcal/kg°C
Water density = 1kg/L
Heating medium oil density = 0.842kg/L

2. Heating Time = the time needed to heat from room temperature to set temperature.

