CTM-E Series

COMET
PLASTIC EQUIPMENT, LLC

Designed to heat molds while maintaining a consistent temperature.

Comet's CTM-E series oil temperature controllers are compact in size, but big in performance. They are designed to heat molds while maintaining a steady temperature and built to meet the strict demands of high molding precision. Media is conveyed to the molds, after being pressurized by the pump, and heated by an electrical heat tube. The CTM-E heats oil up to 302°F (150°C).

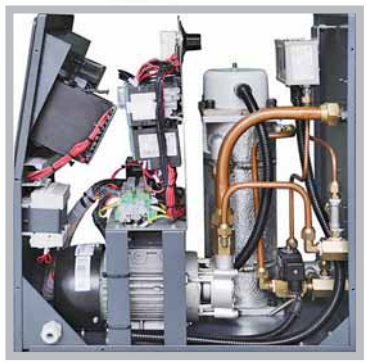
CTM-405-E

Standard Features

- PID multi-stage temperature control system can maintain mold temperatures with ±1° accuracy.
- High efficiency, high temperature pump for efficient heat exchange.
- Multiple safety features including power reverse phase protection, pump overload protection, overheat protection.
- Equipped with low level protection that automatically detects abnormal performance and indicate this via a visible alarm.

Accessory Options

- Water manifolds, Teflon hose and transfer oil.



Inner Structure

When to Use an Oil Temperature Controller

1. In areas where energy supplies are erratic, or the fuels themselves are of unreliable quality.
2. In areas with intermittent electrical blackouts or brownouts, hot oil temperature control units will hold temperature better during electrical failure.
3. When using polycarbonate and many ethylene-based resins, among others, because their melt points exceed the temperature control capabilities of liquid non-pressurized water.
4. To quickly bring up the temperature in an extruder die or a mold before production begins.
5. To increase efficiency by as much as 8% while eliminating flash and blow-down losses in systems operating at very low pressure.
6. To prevent corrosion and reduce system maintenance.
7. To maintain temperatures within ± 1°C which is difficult to control using electrical resistance for heating and forced air for cooling.
8. To maintain liquid temperature control precision and uniformity while avoiding control and pressure issues of steam or high-pressure hot water.

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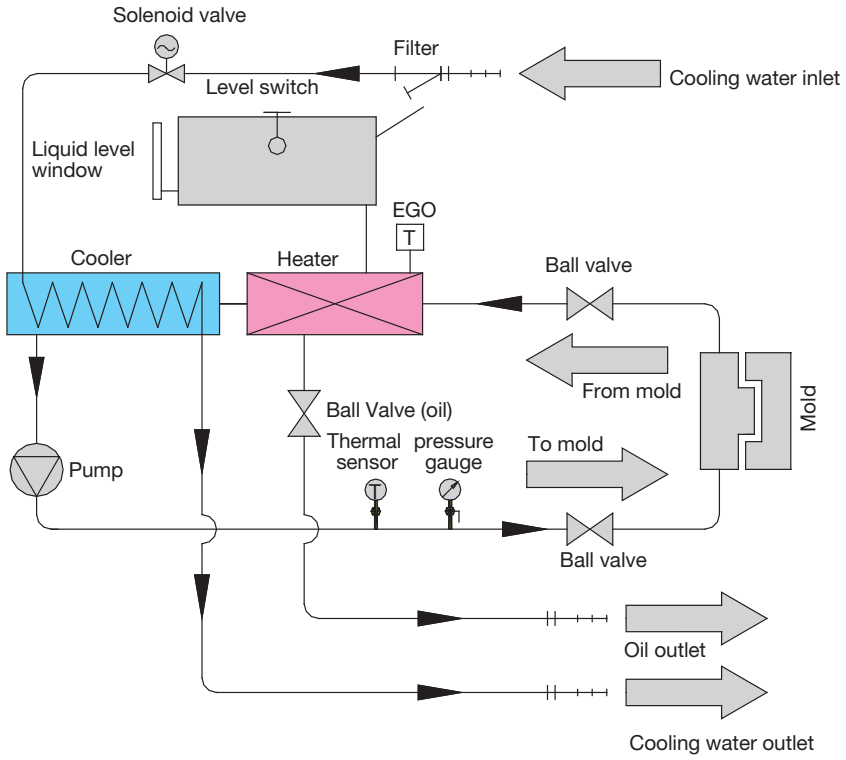
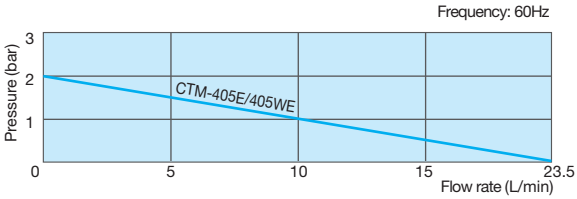
Working Principle

Indirect Cooling

In a repetitive cycle, high temperature oil moves through a pipe to the heater and then is pressured by a pump to the mold. During this process, if the temperature becomes too high, the system will activate the solenoid valve to enable cool water to lower the temperature indirectly until the it reaches the system requirement. If the temperature keeps increasing and reaches the setpoint of EGO, or if the oil level falls below the setpoint, the system alarms and stops operation.



Pump Performance Curve



CTM-405-E Specifications

Max Temperature	302°F (150°C)
Pipe Heater (kW)	4
Pump Power (kW) (50/60Hz)	0.37
Max. Pump Flow (L/min) (50/60Hz)	23.5
Max. Pump Pressure (bar) (50/60Hz)	2
Heating Tank Number	1
Main/Sub. Oil Tank Capacity (L)	—
Cooling Method	Indirect
Mold Coupling* (inch)	3/8 (2 x 2)
Inlet/Outlet (inch)	3/4 / 3/4
Dimensions (mm) (H x W x D)	575 x 325 x 530
Weight (kg)	44

Notes:
1. *Pump testing standard: 50/60Hz purified water power at 68°F (20°C). (±10% tolerance for either max. flow rate or max. pressure).*
2. *" * " = options*
3. *Power supply: 3Ø, 230/400/460/575VAC, 50/60Hz.*

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:** 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

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

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