

Water Heaters



STM-607W



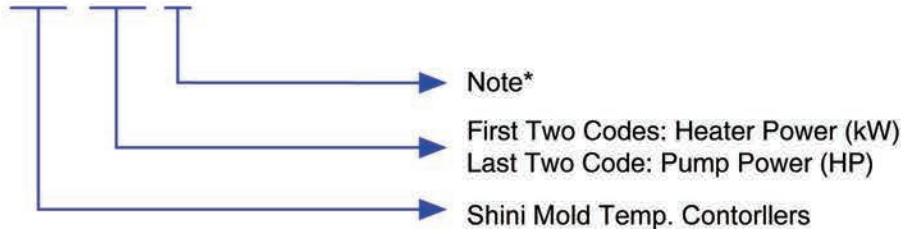
Refer carefully to the Manual before using products.



STM-W Series

■ Coding Principle

STM - xxxx - xx



Note*:

D=Dual-heating Zones PW=Medium is Water with High Temp.
HPW=Medium is Water with High Temp. and High Pressure CE=CE Conformity



STM-607-PW

■ Features

Standard configuration

- P.I.D. multi-stage temperature control system can maintain a mould temperature with accuracy of $\pm 0.5^{\circ}\text{C}$.
- Adopts high efficiency water cycle pump, which can meet the demands of temperature control for precise moulds and mould loop with minor diameter to achieve precise temperature control and high efficient heat exchange. Pump inside adopts stainless steel to avoid explosion.
- 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 visible alarm.
- For standard STM-W, the heating temperature can reach 120°C , while for STM-PW, it can reach 160°C and for STM-HPW, it can reach 180°C .
- Equipped with high pressure protection, safety pressure relieving, automatic water supplying and air exhausting.
- STM-PW/HPW adopts indirect cooling, which makes temperature control more precise. The low viscosity of water realizes fast heat exchange.
- STM-HPW adopts magnetic pump with stable performance to reduce any possibilities of pump leakage.



STM-940-HPW

Accessory option

- Water manifolds and Teflon hose are optional.
- STM-W can opt for function of pump reversion evacuation.
- All models can opt for magnetic pump except for STM-3650W series.

■ Application

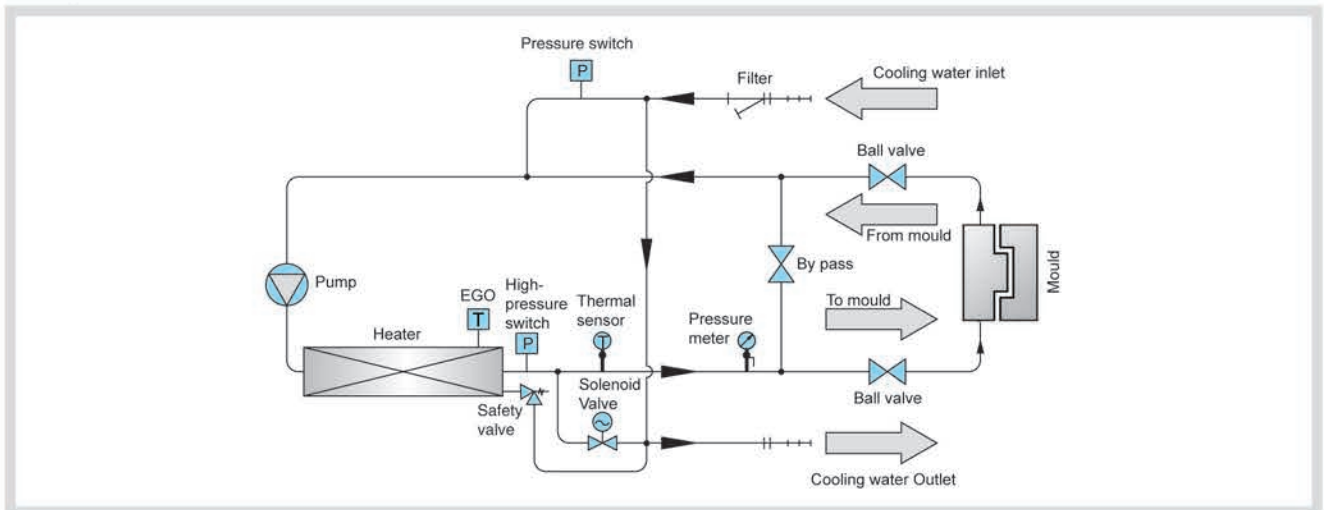
STM-W series water heaters have both standard and high temperature models, which are used to heat up the mould and maintain temperature, although they can be used in other similar applications. High temperature water from the mould is returned to the cooling tank and cooled by either indirect cooling (For high temperature and high temperature plus pressure models) or direct cooling (For standard models). It is then pressurised by the high-pressure pump, sent to the heating tank and finally to the mould with a constant temperature. The OMRON temperature controller can maintain an accuracy of $\pm 0.5^{\circ}\text{C}$.



Control Panel

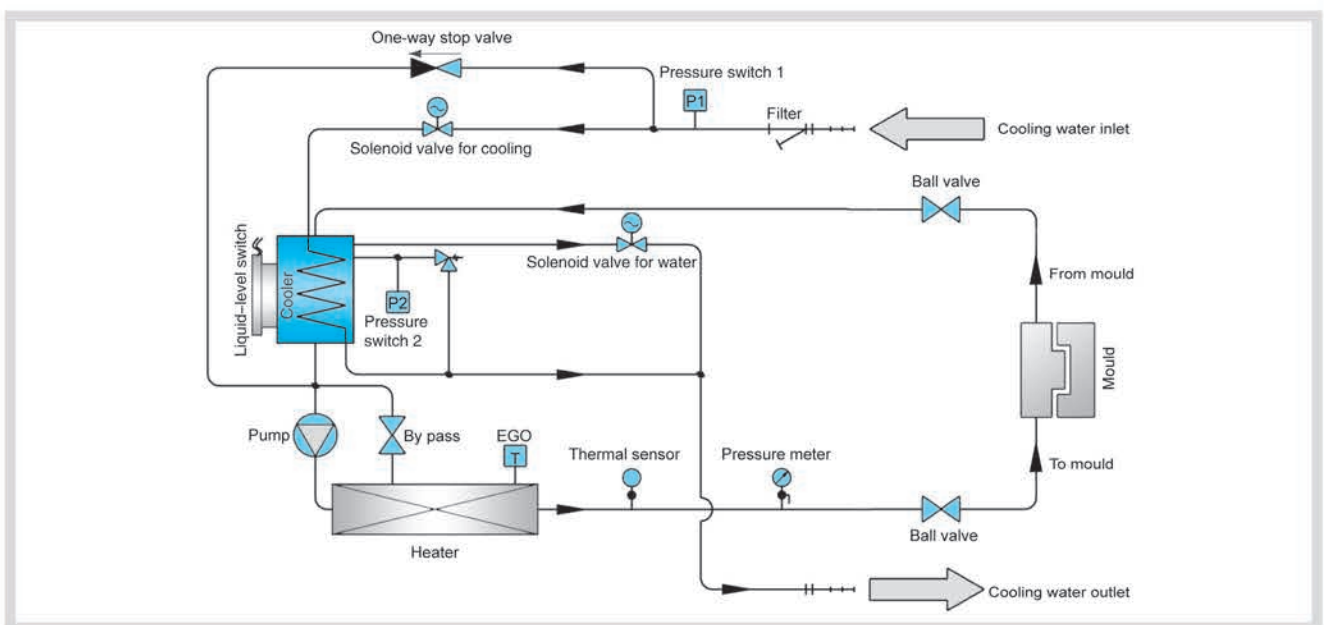
■ Working Principle

High temperature water returns to the machine and then be pressured by pump to the heaters. After being heated, water will be forced to mould and continue the circle. In the process, if the water temperature is too high, the system will activate the solenoid valve to let cooling water cool down the temperature directly until the water is down to the system requirement. If the temperature keeps increasing and reach to the set point of EGO, system will sound high pressure alarm and stop operation; when system pressure is too high (Reach set value of high pressure switch), alarm would sounds and machine halts; if high pressure switch fails to function and system pressure continues to rise to reach set value of safety valve, safety valve would start up to release pressure; when cooling water pressure fails to reach the set value, pressure switch will send a signal of water storage to launch low pressure alarm and machine halts.



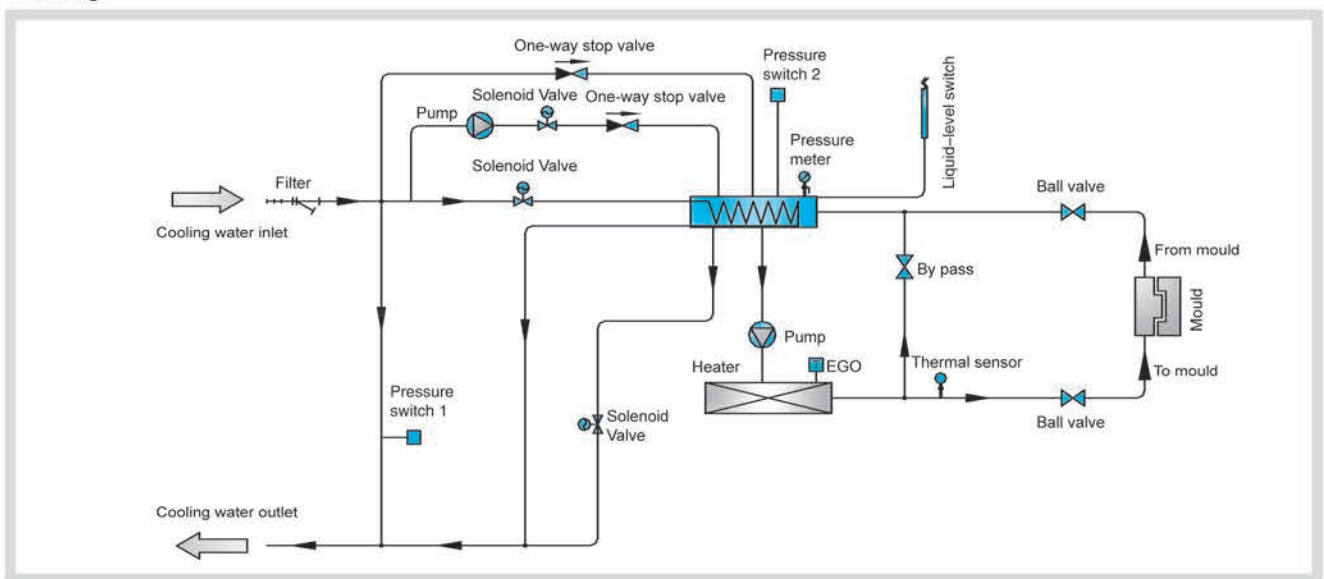
System flow for STM-W (Direct Cooling)

High temperature water returns to the machine and then be pressured by pump to the heaters. After being heated, water will be forced to mould and continue the circle. In the process, if the water temperature is too high, the system will activate the solenoid valve to let cooling water cool down the temperature directly until the water is down to the system requirement. If the temperature keeps increasing and reach to the set point of EGO, system will sound high pressure alarm and stop operation; when cooling water pressure fails to reach the set value, pressure switch will send a signal of water storage to launch low pressure alarm and machine halts.



System flow for STM-PW (Indirect Cooling)

From the mould, high temperature water returns to the cooling tank via pipelines, and then be pressured by pump to the heaters. After being heated, water will flow to the mould and continue it's circulation. In this process, solenoid valve for water refill up will be activated to fill water into the system when liquid level switch detects that the liquid level has dropped down to the set point. However, if the temperature of that water is over high, the system will activate the solenoid valve for cooling to let cooling water come into the system and cools down that water indirectly, thus constant temperature can be maintained. System will activate its over high temperature alarm and stop working when that water keeps beyond EGO set point. Safety valve will be opened for pressure release when system pressure has reached set point of pressure switch 2. If the system pressure keeps beyond the set point of the safety valve, the system itself will activate the solenoid valve for water refill up to release the pressure and machine sounds alarm and halts. If the cooling water pressure could not reach the set point, pressure switch 1 will send the signal for system to activate its over low pressure alarm and stop working.



System flow for STM-HPW (Indirect Cooling)

Specifications

STM-W Specifications

Model	Max. Temp.	Pipe Heater (kW)	Pump Power (kW) (50 / 60Hz)	Max. pump Flow (L/min) (50 / 60Hz)	Max. pump Pressure (bar) (50 / 60Hz)	Heating Tank Number	Heating Tank Capacity (L)	Cooling Method	Mould Coupling* (inch)	Inlet/Outlet (inch)	Dimensions (mm) (H×W×D)	Weight (kg)
STM-607W	120°C (140°C)**	6	0.55 / 0.63	27 / 30	3.8 / 5	1	3.0	Direct	3/8 (2 × 2)	3/4 / 3/4	635 × 280 × 740	55
STM-607W-D		6 × 2	2×0.55 2×0.63	2×27 2×30	3.8 / 5	2	2 × 3.0		3/8 (4 × 2)	3/4 / 3/4	655 × 510 × 740	95
STM-910W		9	0.75 / 0.92	42 / 50	5.0 / 6.4	1	3.0		3/8 (2 × 2)	3/4 / 3/4	635 × 280 × 740	60
STM-910W-D		9 × 2	2×0.75 2×0.92	2×42 2×50	5.0 / 6.4	2	2 × 3.0		3/8 (4 × 2)	3/4 / 3/4	655 × 510 × 740	105
STM-1220W		12	1.5 / 1.9	74 / 84	6.2 / 7.2	1	3.0		3/8 (4 × 2)	1 / 1	695 × 340 × 815	120
STM-2440W		24	2.8 / 3.4	90 / 90	8.0 / 10.2	2	7.4		1 (1 × 2)	1 / 1	870 × 360 × 930	140
STM-3650W		36	4	100 / 100	8.0 / 8.0	4	17.7		1 (1 × 2)	1 / 1	980 × 415 × 930	150

- Note: 1) "D" stands for dual-heating zones, "*" stands for options.
 2) Automatic drain facility can be added for all models as optional feature. (Model denotes "R")
 3) In order to maintain stable temp. of heat transfer media(120°C), cooling water pressure should be no less than 2kgf/cm², but also no more than 5kgf/cm².
 4) Pump testing standard: Power of 50/60Hz, purified water at 20°C. (There is ±10% tolerance for either max. flowrate or max.pressure).
 5) Power supply: 3Φ, 230/400/460/575VAC, 50/60Hz.
 6) "*" stands for for heating the machine to 140°C, cooling water pressure should not be lower than 4kgf/cm².

We reserve the right to change specifications without prior notice.

STM-PW/HPW Specifications

Model	Max. Temp.	Heater (kw)	Pump (kw) (50 / 60Hz)	Max. pump Flow (L/min) (50 / 60Hz)	Max. pump Pressure (bar) (50 / 60Hz)	Heating Chamber Number	Tank (L)		Cooling Method	Mould Coupling* (inch)	Inlet/Outlet (inch)	Dimensions (mm) (H x W x D)	Weight (kg)
							Heating	Cooling					
STM-607-PW	160°C	6	0.55 / 0.63	27 / 30	3.8 / 5.0	1	3.4	2	Indirect	3/8 (2 x 2)	3/4 / 3/4	765 x 320 x 765	80
STM-910-PW		9	0.75 / 0.92	42 / 50	5.0 / 6.4	1	3.4	2		3/8 (2 x 2)	3/4 / 3/4	765 x 320 x 765	85
STM-1220-PW		12	1.5 / 1.9	74 / 84	6.2 / 7.2	1	3.4	4.6		1 (1 x 2)	1 / 1	795 x 340 x 820	95
STM-940-HPW	180°C	9	2.8	150	12	1	3.4	4.6		1 (1 x 2)	1 / 1	960 x 465 x 900	140

Note: 1) "PW" stands for high temp. "HPW" stands for medium is water with high temp. and high pressure. "*" stands for options.

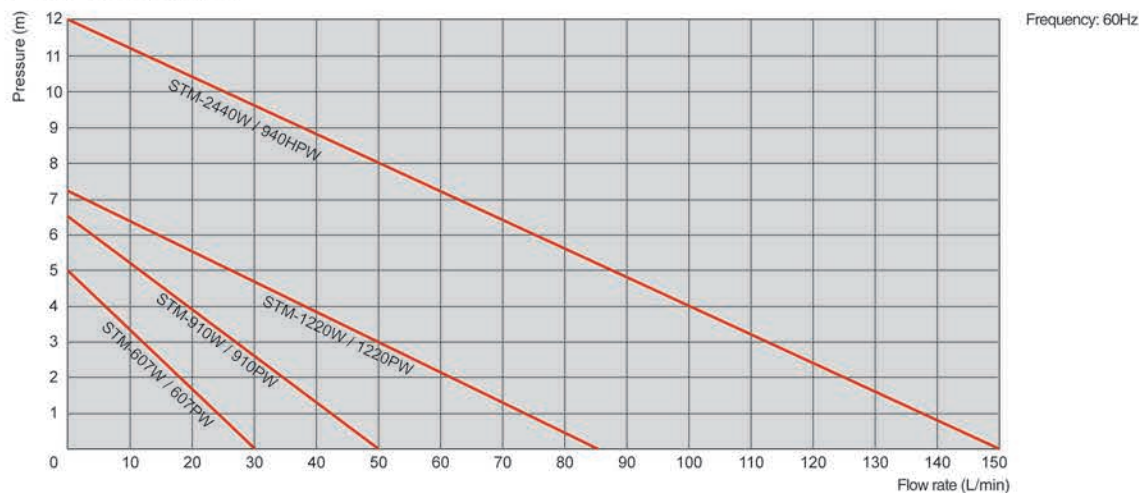
2) To ensure stable water temperature, cooling water pressure should not be less than 2kgf/cm², but also no more than 5kgf/cm².

3) Pump testing standard: Power of 50/60Hz, purified water at 20°C. (There is ±10% tolerance for either max. flowrate or max. pressure).

4) Power supply: 3Φ, 230/400/460/575VAC, 50/60HZ.

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Pump Performance



Reference formula of Mould Controllers model selection

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

Note: safety coefficient can select a value from 1.3 to 1.5.

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

Note: 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