

# Thermaflo FLO

## Thermaflo MX Series Valves For Use With TH750TM Domestic Heaters



Union NPT Model



2.5"/ 3" Flange Model

The Thermaflo MX Series thermostatic mixing valve are designed for use as the final control for the TH750TM Thermaflo Domestic Water Heater. The heated domestic water in the shell is blended with the incoming cold domestic feed to precisely control the outlet water temperature to the domestic users.

### PRODUCT SPECIFICATIONS

- Self contained domestic water blending controller.
- Constant water temperature under different operating conditions.
- Proportional valve (control of hot and cold water).
- Flow reduction in seconds if cold water supply is interrupted.
- Temperature adjustable 100F to 140F Discharge.
- Union NPT models (1 in., 1-1/4 in., 1-1/2 in., and 2 in.).
- Flange connection models (2-1/2 in. and 3 in.).
- Install in any position, heat trapping not required.
- Recirculation connection for fast response.
- Brass / stainless steel construction.
- Moving parts Teflon® coated to prevent calcium and lime deposits.
- Allen wrench for temperature adjustment included.
- Maximum pressure differential between hot and cold ports is 7 psi.
- ASSE 1017 Listed.
- CSA approved.
- Lead Free Plumbing Code Compliance: the wettable surfaces of lead-free models contain less than 0.25% of lead by weighted average.

### APPLICATION

The MX Series self contained mixing valve is specifically designed to serve as the final discharge control of the domestic water temperature +/- 4F for the Thermaflo TH750TM series domestic water heater. Hot water from the TH750TM shell flows into the hot port where the inner thermostatic controller modulates flow from the cold water port to hold a discharge domestic water setpoint plus or minus 4F. Loop water recirculation can come back into the top recirculation port or the cold side for constant consistent loop domestic temperatures. The MX can also be used to temper water from any Thermaflo TH750 Heater out to a domestic user loop.



2025

## SPECIFICATIONS

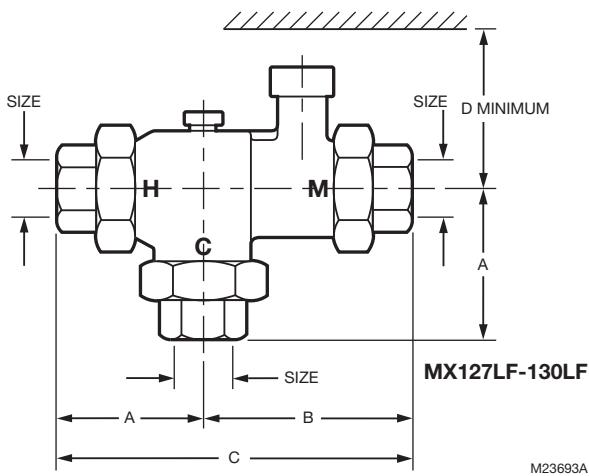


Fig. 1. Dimensions of Union NPT model.

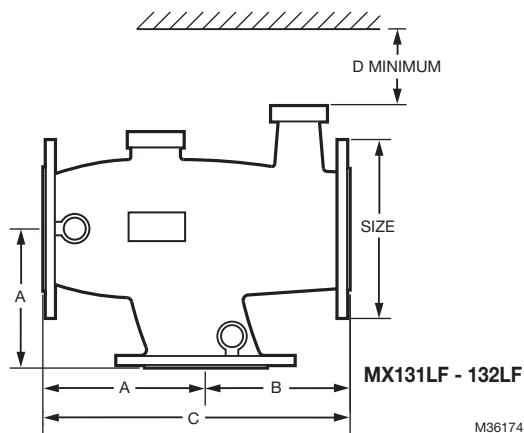


Fig. 2. Dimensions of Flange model.

Table 1. MX Series Valve Models.

Product Number	Size NPT	C <sub>v</sub>	Min. Flow (GPM)	GPM @ 10 PSIG Drop	Temp. Range	Weight in Lbs (kg)	Dimensions in inches (mm)							
							A	B	C	D				
MX127LF	1 in.	4.0	1.0	20	113°-149° F (45°-65° C)	3.6 (1.6)	2.8 (66)	3.7 (94)	6.5 (165)	6.0 (152)				
MX128LF	1-1/4 in.	9.3	1.0	40		6.4 (2.9)	3.3 (84)	4.4 (112)	7.7 (196)	6.9 (175)				
MX129LF	1-1/2 in.	13.5	2.0	65		8.4 (3.8)	3.6 (91)	5.0 (127)	8.6 (218)	7.0 (178)				
MX130LF	2 in.	18.0	2.0	85		13.1 (5.9)	4.2 (107)	5.8 (147)	10.0 (254)	7.3 (185)				
MX131LF**	2-1/2 in. Flange	34.0	5	156	113°-149° F (45°-65° C)	51 (23.1)	5.7 (144.8)	5.7 (144.8)	11.4 (289.6)	4.0 (101.6)				
MX132LF**	3 in. Flange	50.0	5	214	113°-149° F (45°-65° C)	62 (28.1)	6.1 (154.9)	6.1 (154.9)	12.2 (309.9)	4.0 (101.6)				
MX 050-RP Recirculation Adapter Kit						0.2 (0.1)								
* Union models include 1/2-in. recirculation adapter.						Maximum working Pressure 150 psi (1034 kPa). Minimum temperature difference between hot and mix should be 10° F (6° C).								
** Flange models recirculation adapter size (MX131LF 1 in. and MX132LF 1-1/4 in.)						Consult Thermaflo for GPM flow rates at different pressure drops. Valves can be piped in parallel for higher flow rates.								

Maximum working pressure: 150 psi (1034 kPa).

### Replacement Internal Spare Parts

Product Number	Description
MX050-RP	1/2 inch Recirculation Adapter
MX100-RP	1" Thermal Element & Gasket Kit for MX
MX125-RP	1 1/4" Thermal Element & Gasket Kit for MX
MX150-RP	1 1/2 " Thermal Element & Gasket Kit for MX
MX200-RP	2" Thermal Element & Gasket Kit for MX
MX250-RP	2 1/2" Thermal Element & Gasket Kit for MX
MX300-RP	3" Thermal Element & Gasket Kit for MX

## OPERATION

Automatic operation is provided by the inner thermostatic element. Element will control hot and cold supply based on valve setting. If cold water is shut off, valve reduces mixed flow in seconds (speed/residual flow rates vary by size).

### CAUTION

**Do not override calibration. Test temperature with thermometers.**

### Service

To remove dirt, flush valve. To remove calcium and lime deposits, soak valve in vinegar for 24 hours and flush or contact factory for assistance. Do not attempt to field repair this calibrated valve. Consult Thermaflo Inc.

## Temperature Selection

The Thermaflo MX Series Valves are made in ranges: 113°-149° F (45°-65° C). The factory setting is 120° F (54° C). Change temperature setting with an Allen wrench, which is included; 3/16 for MX127LF or a 5/16 for MX128LF, MX129LF and MX130LF. Punch through the center of the temperature range label. By turning the screw clockwise, the mix temperature increases (counterclockwise, it decreases). Each complete turn with the Allen wrench changes the temperature as follows: MX127LF (1 in.); 11° F (6° C), MX128LF (1-1/4 in.), MX129LF (1-1/2 in.) and MX130LF (2 in.), 7° F (4° C). Do not operate valve at temperatures outside of its calibrated range of 113°-149° F (45°-65°). Use a thermometer to verify temperature.

## TYPICAL INSTALLATION DIAGRAMS

### Domestic Water Mixing

Use when water temperature produced by heater is hotter than desired at point of use. Many codes require that water supplied to the system be limited to 120° F (49° C) max. Consult Thermaflo Inc. 704-940-1228

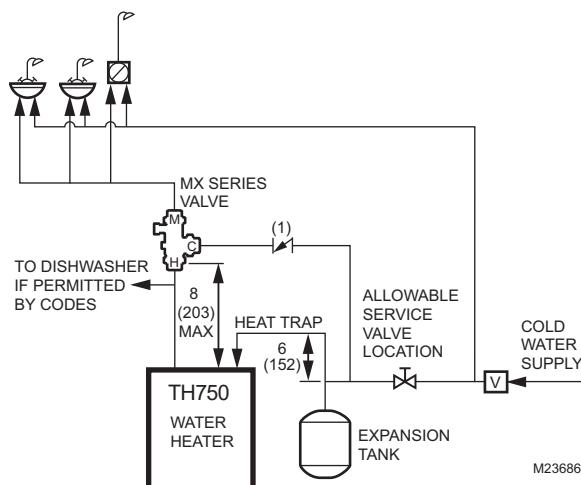


Fig. 3. Water heater without recirculation. Dimensions shown in in. (mm).

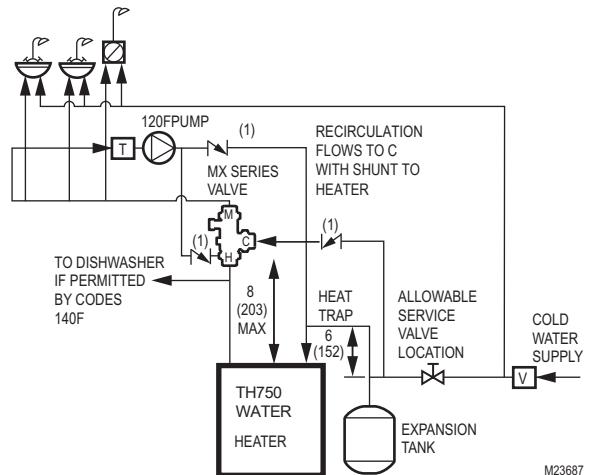


Fig. 4. Heater with recirculation. Dimensions shown in in. (mm).

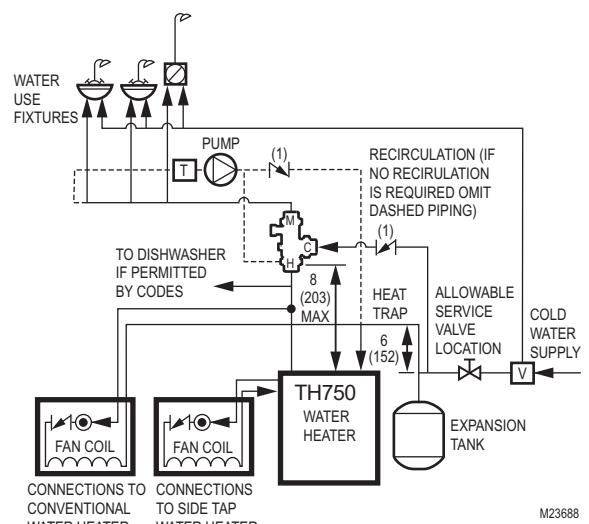


Fig. 5. Water heater is used for domestic water and space heating. Dimensions shown in in. (mm).

1. = Check Valve.

2. = Alternate Pump Location.

V. = Any device which turns the domestic water system into a closed system, such as backflow preventers, check valves or pressure reducing valves.

NOTE: "V" is optional depending on local codes. If a "V" type valve is used, it is mandatory that a thermal expansion tank be installed as shown. Otherwise dangerously high pressures could result or water heater safety relief valve will frequently expel water. If a "V" device is not used, a thermal expansion tank is not required.

### Space Heating

Boiler must operate at a water temperature higher than desired temperature in the heating system in order to perform at maximum efficiency. Example: Radiant floor heating.

## Mixing Applications (Constant Supply Temperature)

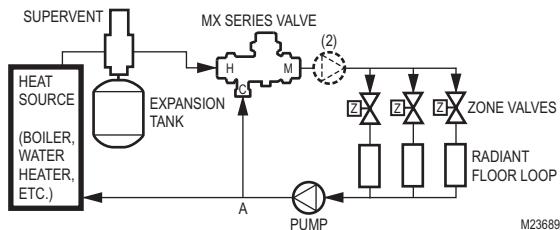


Fig. 6. Single loop.

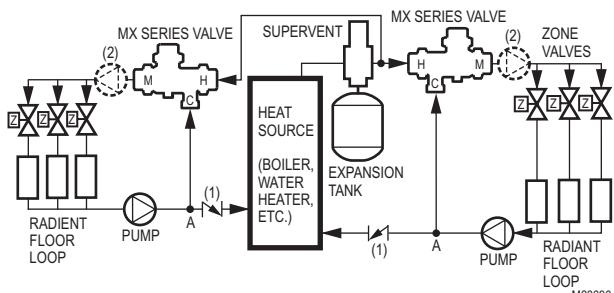


Fig. 7. Multiple loops. Each loop operates at a different temperature.

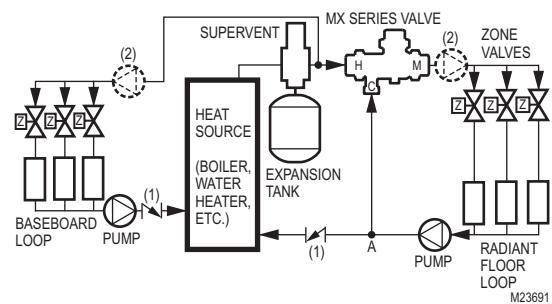


Fig. 8. Multiple Loops. One loop operates at boiler water temperature and MX Series loops at lower temperature.

## Diverting Application

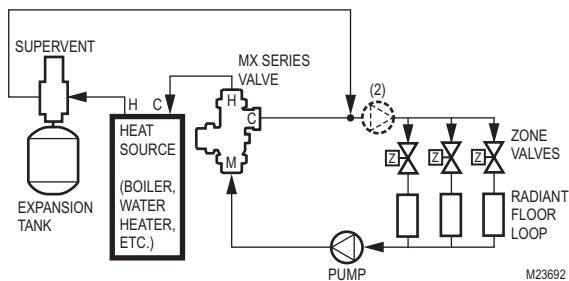


Fig. 9. Single loop. For multiple loops see Mixing Applications.

## Hot Water Sizing Method For Thermaflo Mixing Valve Selection

1. Determine Fixture Units – Table 2
2. Using Total Fixture Units determine load in Gpm from Table 3.
3. Select product based on minimum flow requirement and allowable pressure drop (20 Psi).

Table 2. Fixture Unit Worksheet.

Fixture Units			Fixture Unit Calculation				
Fixture	Private	Public	# of Fixtures	(multiply by)	Fixture Units	Equals	Total
Lavatory	1	2		x		=	
Kitchen Sink	2	4		x		=	
Bathtub	2	4		x		=	
Separate Shower	2	4		x		=	
Clothes Washer	2	4		x		=	
Dish Washer	1	2		x		=	
						<b>Total</b>	

**EXAMPLE:** A system with 40 Lavatory (Private), 40 Bathtubs (private) and 5 Lavatory (public) has total fixture count of 130 fixture units. From Table 3 - 130 fixture unit = 38 Gpm

Table 3. Domestic Hot Water Demand – Load Data.

Fixture Units	Gpm		Fixture Units	Gpm		Fixture Units	Gpm
			55	23		350	72
6	4.5		60	24		400	78
10	6.5		70	27		450	86
14	8.5		80	29		500	93
20	11		90	31		550	100
24	13		100	33		600	107
30	15		130	38		650	115
34	16.5		160	43		700	122
40	18.5		200	49		750	130
45	20		260	58		800	134.5
50	21		300	64		1000	156

Table 4. Single High Capacity MX Series Mixing Valve Selection Chart

Product	Min Flow GPM	Outlet Size Inch	System Differential Pressure Drop (PSI)					
			5	10	15	20	25	30
MX127LF	1	1"	9	13	15	18	20	22
MX128LF	2.5	1 1/4"	21	29	36	42	47	51
MX129LF	3.5	1 1/2"	30	43	52	60	68	74
MX130LF	5	2"	40	57	70	80	90	99
MX131LF	8	2 1/2"	76	108	132	152	170	186
MX132LF	12	3"	112	158	194	224	250	274

This sizing method is a general guideline. Please refer to local building and plumbing codes for additional guidance.



Contact Thermaflo Applications Engineering @  
704-940-1228 Newberry, South Carolina 29108  
Water to Water Domestic Heaters  
Steam Fired Water Heaters  
Heat Exchangers  
Condensate Pumping Systems