WEIL-McLAIN

MAXI-FLO

Swimming Pool Heat Exchangers

5 Sizes

Models
WMPH-95,
135, 200,
260 & 400

Outputs
95 – 400
MBH

- For Pools, Hot Tubs and Spas
- Stainless Steel Construction
- Weil-McLain Quality & Sales Support

WEIL-McLAIN Heat Exchangers

MAXI-FLO POOL HEATERS

Weil-McLain Model WMPH Maxi-Flo pool heaters are available in five sizes with outputs from 95 to 400 MBH. These heat exchangers are designed for use with Weil-McLain cast iron boilers to provide dependable, economical heating for all types and sizes of swimming pools, spas and hot tubs.

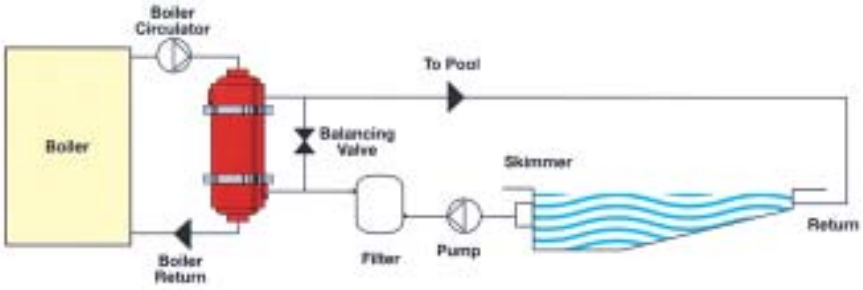
Maxi-Flo features include:

- Made of high quality corrosion-resistant 316 stainless steel, roll-formed and precision welded.
- Specially designed built-in flow restrictor assures maximum heat transfer.
- All units are leak tested by factory specialists.
- Furnished with stainless steel holding brackets.
- Compact size... light weight... low pressure drop.

Most important, Maxi-Flo pool heaters are backed by Weil-McLain for the best value in product quality, sales, service and technical support.

WMPH-95

WMPH-135



HEAT EXCHANGER SELECTION

Step 1: Determine the desired heat-up rate based on pool usage.

The desired heat-up rate is usually the most important factor affecting boiler and heat exchanger selection.

The heat-up rate for extended use (summer season) is 1°F/hour. The heat-up rate for periodic use (weekends and holidays) is 2°F/hour.

Step 2: Determine pool capacity

Rectangular Pools:

Capacity (gals.) = 7.5 × Length (feet) × Width (feet) × Average Depth (feet)

Circular Pools:

Capacity (gals.) = 5.9 × Diameter^2 (feet) × Average Depth (feet)

Step 3: Select Maxi-Flo Heat Exchanger required

Enter the selection table at pool capacity and select the Maxi-Flo heat exchanger model and recommended boiler output based on heat-up rate.

Step 4: Check heat loss to surroundings

$$\text{Heat Loss (Btu/hr)} = 12 \times \left[\begin{array}{c}\text{Pool surface area (sq. ft.)}\end{array}\right] \times \left[\left[\begin{array}{c}\text{Desired pool temp.(°F)}\end{array}\right] - \left[\begin{array}{c}\text{Coldest avg. air temp. during use (°F)}\end{array}\right]\right]$$

Boiler output selected in Step 3 must be *more* than the heat loss to the surroundings.

Notes:

1. The typical desired pool temperature is 80°F.
2. Heat-up rates will decrease as outdoor temperature drops.

EXAMPLE

Determine the boiler output and heat exchanger required for a 30-foot long by 16-foot wide by 5.5 foot average depth pool. The pool is for extended use during the summer season. The coldest air temperature anticipated is 65°F.

continued on next page

HEAT EXCHANGER SELECTION – continued

Pool Capacity (gal.)	1°F/hr Heat-Up Rate		2°F/hr Heat-Up Rate	
	Boiler Output Required (Btu/hr)	Heat Exchanger Model	Boiler Output Required (Btu/hr)	Heat Exchanger Model
2,000	17,000	WMPH-95	33,000	WMPH-95
4,000	33,000	WMPH-95	67,000	WMPH-95
6,000	50,000	WMPH-95	100,000	WMPH-135
8,000	67,000	WMPH-95	133,000	WMPH-135
10,000	83,000	WMPH-135	167,000	WMPH-200
12,000	100,000	WMPH-135	200,000	WMPH-260
14,000	117,000	WMPH-135	234,000	WMPH-260
16,000	133,000	WMPH-135	267,000	WMPH-400
18,000	150,000	WMPH-200	300,000	WMPH-400
20,000	167,000	WMPH-200	334,000	WMPH-400
22,000	184,000	WMPH-200	367,000	WMPH-400

Use WMPH-95 for spas and hot tubs with 150 gal. or less capacity.

EXAMPLE (continued)

Step 1:
For extended use, the desired heat-up rate is 1°F/hour.

Step 2:
Pool capacity = 7.5 × 30' × 16' × 5.5' = 19,800 gallons

Pool Capacity (gal.)	1°F/hr Heat-Up Rate		2°F/hr Heat-Up Rate	
	Boiler Output Required (Btu/hr)	Heat Exchanger Model	Boiler Output Required (Btu/hr)	Heat Exchanger Model
24,000	200,000	WMPH-260	400,000	WMPH-400
26,000	217,000	WMPH-260	434,000	WMPH-260 (2)*
28,000	234,000	WMPH-260	467,000	WMPH-260 (2)*
30,000	250,000	WMPH-260	500,000	WMPH-260 (2)*
32,000	267,000	WMPH-400	534,000	WMPH-400 (2)*
34,000	284,000	WMPH-400	567,000	WMPH-400 (2)*
36,000	300,000	WMPH-400	600,000	WMPH-400 (2)*
38,000	317,000	WMPH-400	634,000	WMPH-400 (2)*
40,000	334,000	WMPH-400	667,000	WMPH-400 (2)*
42,000	350,000	WMPH-400	700,000	WMPH-400 (2)*
44,000	367,000	WMPH-400	734,000	WMPH-400 (2)*
46,000	384,000	WMPH-400	767,000	WMPH-400 (2)*

* Two heat exchangers piped reverse return.

Step 3:
From selection table, for 20,000 gallons pool capacity and 1°F heat up rate:
Required Boiler Output - 167,000 Btu/hr.
Required Heat Exchanger Model - WMPH-200

Step 4:
Surface Area = 30 ft. × 16 ft. = 480 sq. ft.
Heat Loss = 12 × 480 × (80°F - 65°F) = 86,400 Btu/hr.

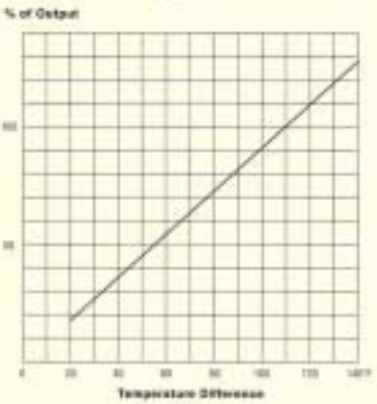
Boiler output is greater than the heat loss to the surroundings.

ADJUSTMENT FACTORS

Heat exchanger performance will vary with:
1. The temperature difference between the hot boiler water and pool water entering the heat exchanger, and...
2. The flow rates of the boiler water and pool water.

Use Diagrams A and B to determine heat exchanger output based on different temperatures and flow rates.

Diagram A



EXAMPLE
Determine the heat-up rate and recovery time for a 500 gallon spa using a WMPH-135.

Conditions:
Temperatures: Boiler water - 175° } 70° temp. diff.
Pool water - 105°
Flow Rates: Boiler water - 6.6 GPM
Pool water - 33 GPM
Ambient: Coldest expected ambient temp. - 60°

STEP 1. The output of the heat exchanger is based on 110° temperature difference. Use diagram A to determine the output correction factor.

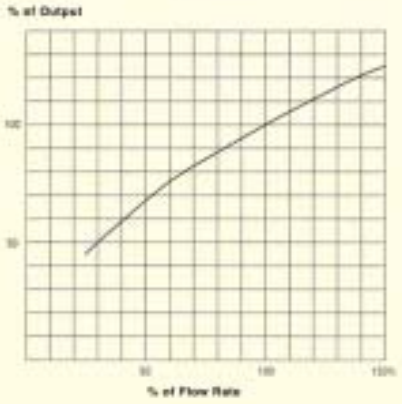
From Diagram A, the correction factor for 70° temperature difference is 64%.

STEP 2. From the ratings table the pool water flow rate for a WMPH-135 is 55 GPM. Since the flow rate in the example is 33 GPM, calculate the percent difference, then use Diagram B to determine the flow rate correction factor.

33 ÷ 55 = .6 or 60%

From Diagram B the flow rate correction factor for 60% is 75%.

Diagram B



STEP 3. To determine the adjusted output of the WMPH-135, multiply the BTU/hr. output of the heater by the two correction factors.

135,000 BTU/hr. × .64 × .75 = 64,800 BTU/hr.

STEP 4. To determine the heat-up rate, use this formula:

$$\frac{\text{BTU/hr.}}{\text{Gal. Capacity} \times 8.33} = \frac{64{,}800}{500 \times 8.33} = 15.5° \text{ per hour heat-up rate}$$

STEP 5. To determine recovery time:

$$\frac{\text{Pool Temp.} - \text{Ambient}}{\text{Heat-up Rate}} = \frac{105° - 60°}{15.5°} = 2.9 \text{ or } 3 \text{ hours recovery time}$$

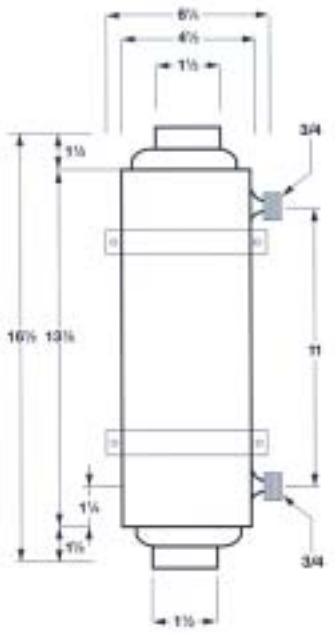
WEIL-McLAIN Heat Exchangers

MAXI-FLO RATINGS

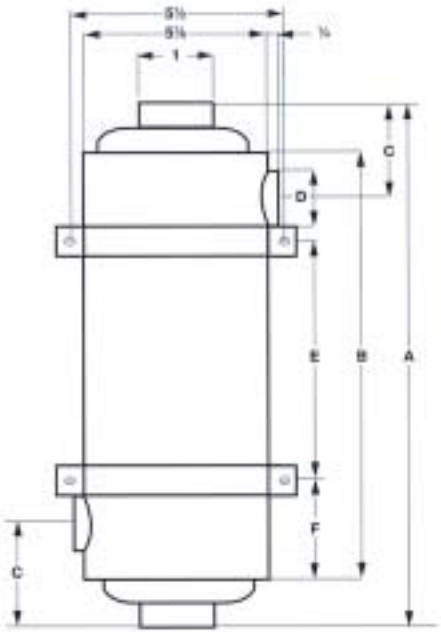
Model No.	Output Btu/hr	Boiler Water Flow		Pool Water Flow		Heat Transfer Surface Sq. Ft.	Approx. Shipping Wt. – Lbs.
		GPM	Pressure Drop Ft.	GPM	Pressure Drop Ft.		
WMPH-95	95,000	6.0	3.8	40	0.3	2.0	6
WMPH-135	135,000	6.6	1.0	55	2.7	3.2	8
WMPH-200	200,000	8.0	1.7	65	4.5	4.8	11
WMPH-260	260,000	9.4	2.3	80	6.0	6.4	14
WMPH-400	400,000	13.0	6.0	95	8.0	11.8	24

Ratings based on 110°F temperature difference between boiler water and pool water.
Boiler Side: Maximum working pressure – 140 PSI; Maximum working temperature – 230°F.

DIMENSIONS



WMPH-95



WMPH-135
200, 260 & 400

Model No.	DIMENSIONS – IN.					
	A	B	C	D	E	F
WMPH-135	13½	11	3	1½	4	3½
WMPH-200	18¾	16	3	1½	9	3½
WMPH-260	23¾	21¼	3	1½	14	3½
WMPH-400	41¾	39⅝	3½	2	31½	4

All bracket holes are 1/4" I.D.

WARNING! Automatic chlorinators and chemical feeders: Chlorinators must feed downstream of the heat exchanger and have an anti-siphoning device to prevent chemical back-up in the heat exchanger when the pump is off.

Sales Offices

New England
100 Medway Road
Suite 303
Milford, MA 01757
508.478.6800
FAX 508.478.6869

Metro
River Drive Center 1
619 River Drive
Elmwood Park, NJ 07407
201.797.8550
FAX 201.797.8552

Mid-Atlantic
17000 Commerce Parkway
Suite B
Mt. Laurel, NJ 08054
856.866.7400
FAX 856.866.8828

Mideast
Penn Center West #2
Suite 308
Pittsburgh, PA 15276
412.788.9345
FAX 412.788.0177

Midwest
2225 Enterprise Drive
Suite 2507
Westchester, IL 60154
708.562.6220
FAX 708.562.6371

West
1616 17th Street
Suite 562
Denver, CO 80202
303.628.5540
FAX 303.628.5539

WEIL-McLAIN

Locate our Sales Offices by visiting our website:
www.weil-mclain.com

Weil-McLain
500 Blaine Street
Michigan City, IN 46360-2388