

SWIMMING POOL HEAT EXCHANGERS

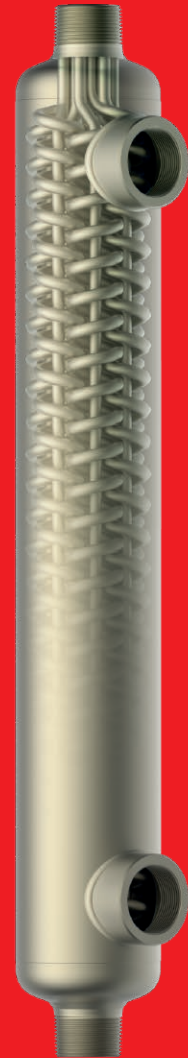
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About AIC

With over a decade of experience, AIC is a renowned specialist in the design, engineering, and fabrication of stainless steel and titanium heat exchangers.

Our two manufacturing locations and teams of seasoned in-house engineers, designers, and manufacturing specialists, ensure that AIC remains at the forefront of advanced heat transfer solutions.

With proven product designs, a “no compromise on quality” attitude, and automated production processes, we are able to carry out the most complex and technologically advanced projects.

Our state-of-the-art facilities utilize the most leading edge processes, advanced automated and robotic systems,

and well sourced materials for the most stringent of applications. CFD analysis and simulation software improve our modelling capabilities and help analyze multiple design variations.

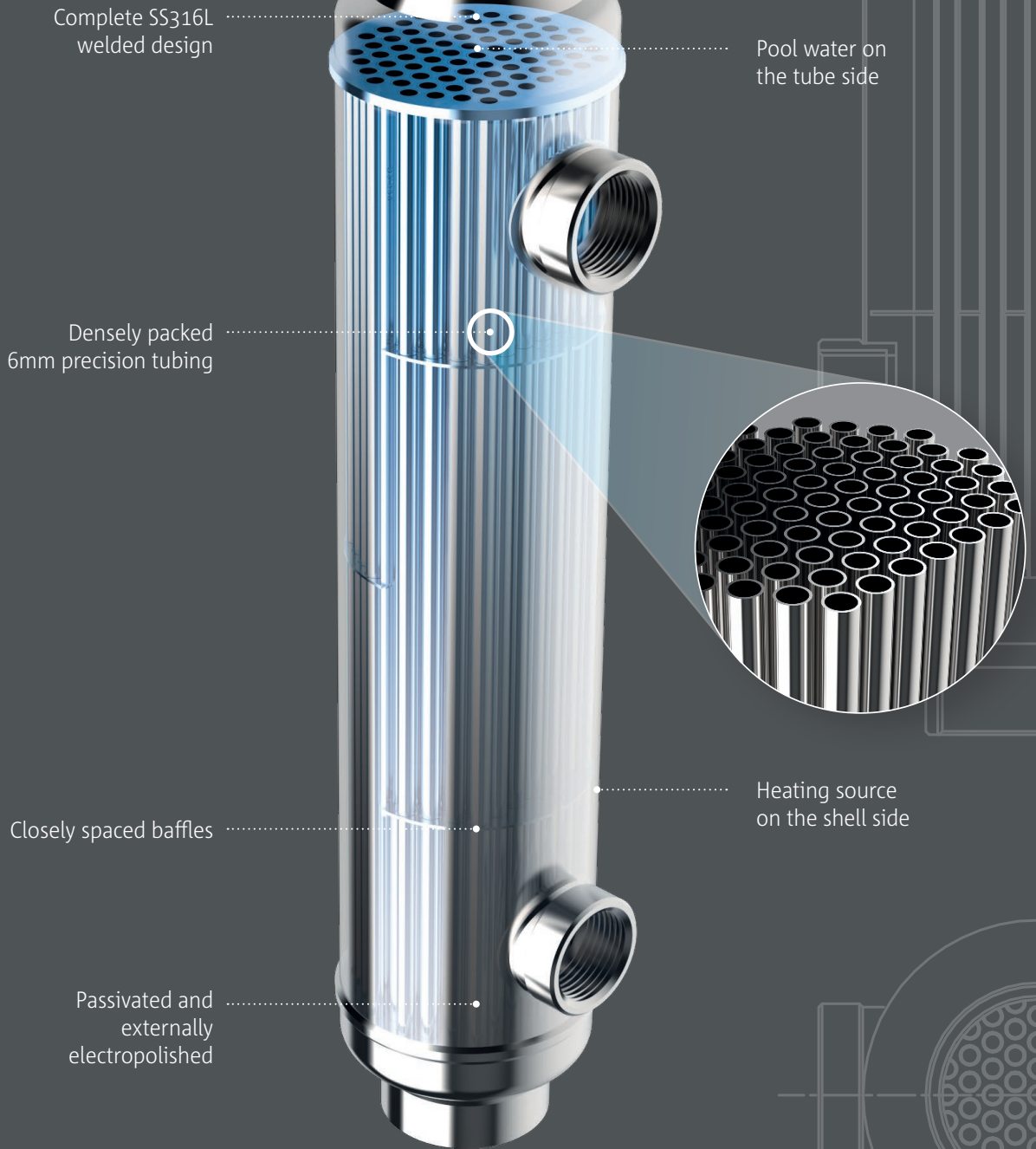
Our own in-house tube mills and sophisticated CNC equipment provide substantial technological flexibility and minimal product development times.

AIC products are manufactured in accordance with the guidelines of ASME and PED industry design codes.

Our stringent quality management system ensures that we continue to provide top quality products that clients have come to associate with the AIC brand.

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STAINLESS STEEL 316L



Typical Applications

- Standard chlorinated pools
- Fresh water applications
- Pool heating with low temperatures (condensing boilers, geothermal)
- Oil/glycol coolers
- In-floor heating

Distinct Advantages

- Dense heat transfer area
- Low pressure drops
- Specifically designed for low temperature sources



NICROM-24
super austenitic alloy

CORROSION RESISTANCE
Elevated levels of chromium, molybdenum, and the addition of nitrogen enhance the strength and resistance of NICROM-24 to chloride pitting, crevice corrosion, and stress-corrosion cracking (SCC).

Complete Nicrom-24 welded design

Directional baffles

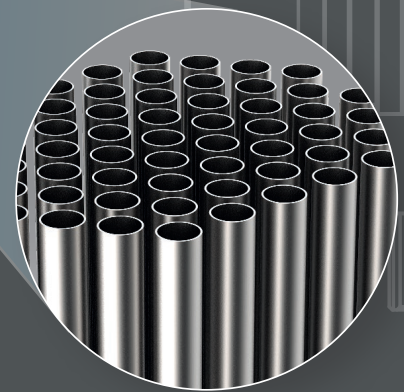
Specialized 8 mm tubing

Vertical or horizontal installation

Fully passivated

Heating source on the tube side

Pool water on the shell side



Typical Applications

- Salt water swimming pools, spas, hot tubs
- Marine oil coolers
- Waste water heat recovery

Distinct Advantages

- Superior corrosion resistance provides protection for salt water and other marine applications.
- High erosion corrosion resistance suitable for applications with high fluid velocities.
- High material strength for quality performance and long product life.
- Low pressure drops.

POOL POWER PRODUCTS

The AIC series of Pool Power Products define innovation with attention to design excellence and uncompromising quality. Market-driven and market-proven, these products excel in the most rigorous and demanding of environments with unsurpassed performance and finesse. Each intricate design is versatile, yet grounded in rigid standards. Robust, yet finely crafted with the most technically superior materials.

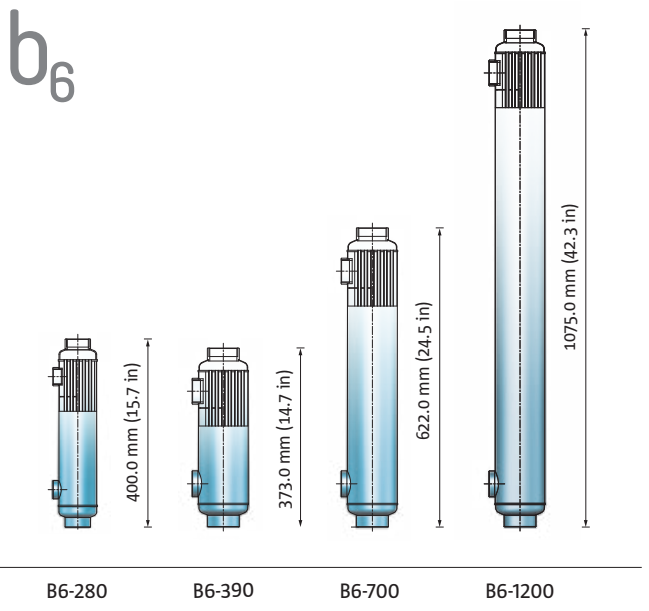
Experience an AIC Pool Power Product: heat exchangers that are efficient in nature, compact in design, and pioneering at heart.



B6 line

A product with a purpose. Complete welded construction with high strength 316L stainless steel, underlined by distinctive densely packed precision tubing, this series is formulated for consistent, reliable performance with high fluid velocities and a close temperature approach.

Exceptional thermal performance.



B6 Line

SS 316L

1. Calculate Your Pool Capacity

Rectangular pool:

- capacity [m³] = length [m] x width [m] x average depth [m]
- capacity [USGal] = 7.5 x length [ft] x width [ft] x average depth [ft]

Circular pool:

- capacity [m³] = 0.785 x [diameter [m]]² x average depth [m]
- capacity [USGal] = 5.9 x [diameter [ft]]² x average depth [ft]

2. Determine Required Material of Construction

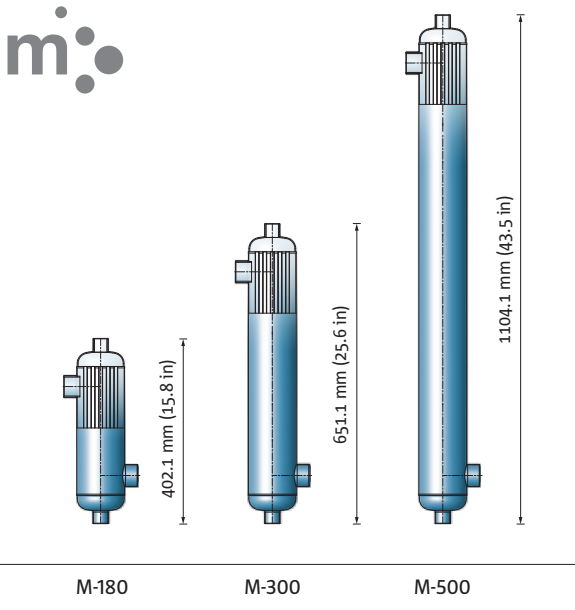
SS 316L	Nicrom-24	Titanium
Fresh water applications	Salinated pools	Complete immunity to chlorine and chlorides
Standard chlorinated pools	Salt water applications	Salt water systems involving elevated temperatures (e.g. steam)
Chloride concentration below 400mg/l	Chloride concentration above 400mg/l	Pool systems using refrigerants as a heating source
Chlorine concentration below 0.8mg/l (long term)	Chlorine concentration above 0.8mg/l (long term)	
Chlorine concentration below 1.2mg/l (short term)	Chlorine concentration above 1.2mg/l (short term)	

A corrosive environment is often the result of multiple variables, not just chemical levels. For systems with operating temperatures above 212°F (100°C), use titanium.

M line

Combine engineering ingenuity with nature's vitality, and yield a resilient, **super austenitic marine alloy** product series that has continuously demonstrated its superior performance and strength over other commercially marketed marine alloys. True to form, the **M-Line** is a marriage of resistances: superior corrosion resistance with high erosion corrosion resistance, highly valued for its use in the seawater and salt water environments.

Unrivaled in its perfection.



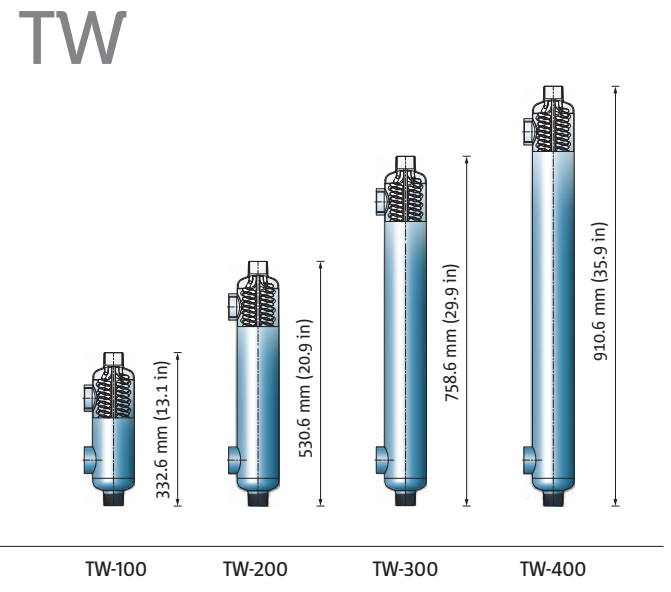
M Line

NICROM-24

TW line

A unique heating coil geometry that captures and enhances the closest of temperature approach. A one-piece welded **pure titanium** masterpiece, intrinsically designed for the most aggressive of environments. Exceptional material strength and corrosion resistance, matched with unparalleled quality.

Ultralight construction.



TW Line

TITANIUM

3. Evaluate The Boiler Capacity

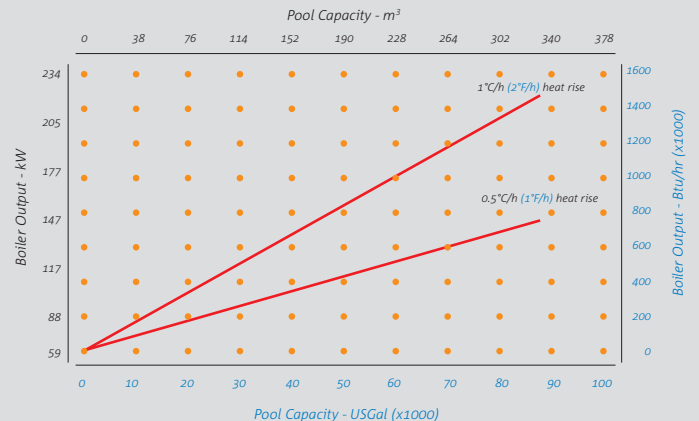
Ensure that your boiler has enough capacity to reach the required pool temperature, and to maintain it at this temperature through daily use.

To maintain the pool at the required temperature, the boiler should have the capacity to handle the pool heat losses, calculated as:

$$\text{Heat Loss [kW]} = 0,0682 \times [\text{pool surface area [m}^2\text{]}] \times [\text{pool temperature [}^\circ\text{C]} - \text{air temperature [}^\circ\text{C]}]$$

$$\text{Heat Loss [Btu/hr]} = 12 \times [\text{pool surface area [sqft]}] \times [\text{pool temperature [}^\circ\text{F]} - \text{air temperature [}^\circ\text{F]}]$$

Boiler Selection Chart



Based on heating source 180°F (82.2°C).

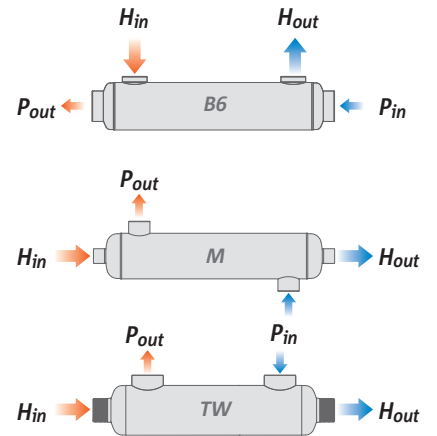
Nominal Pool Capacity

Heat Exchanger Model	Pool Capacity	
	m ³	USGal
B6-280	95	25000
B6-390	125	33000
B6-700	235	62000
B6-1200	397	105000
M-180	61	16000
M-300	102	27000
M-500	167	44000
TW-100	34	9000
TW-200	68	18000
TW-300	102	27000
TW-400	129	34000

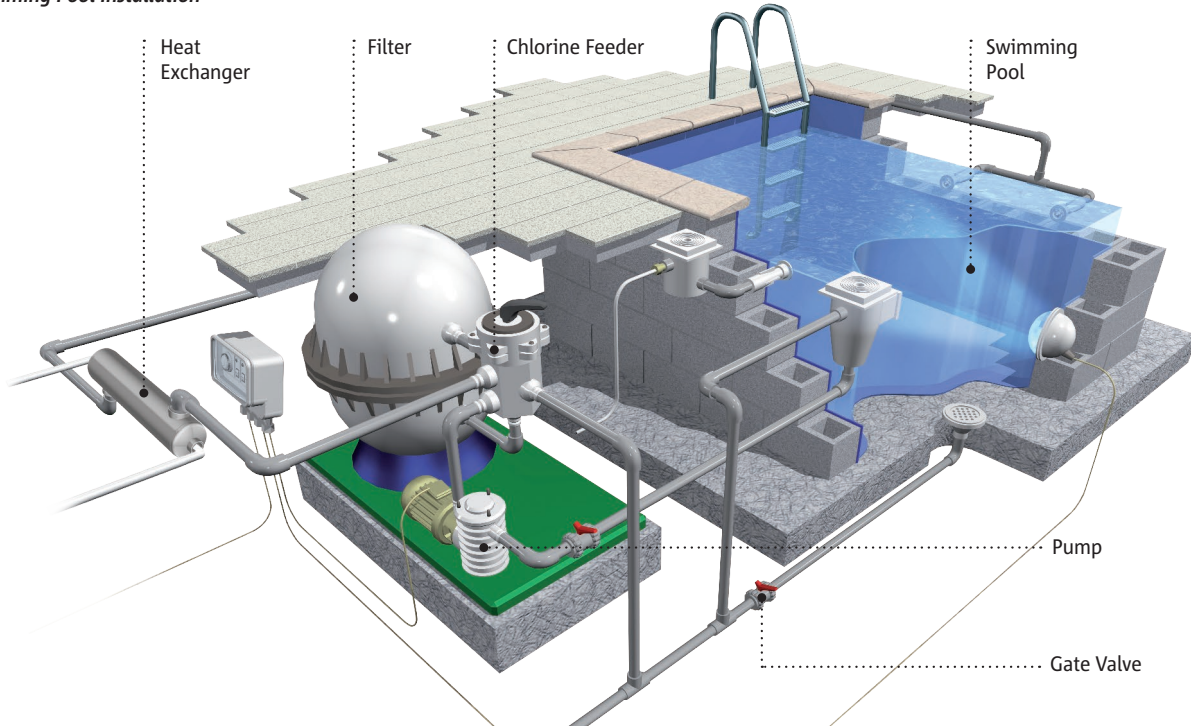
Based on 180°F (82.2°C) supply water and specified nominal flows.
See Technical Product Specifications table.
For general reference only. Please consult our office for product selection verification.

Flow Direction

H_{in}	Heating Source IN
H_{out}	Heating Source OUT
P_{in}	Pool Water IN
P_{out}	Pool Water OUT

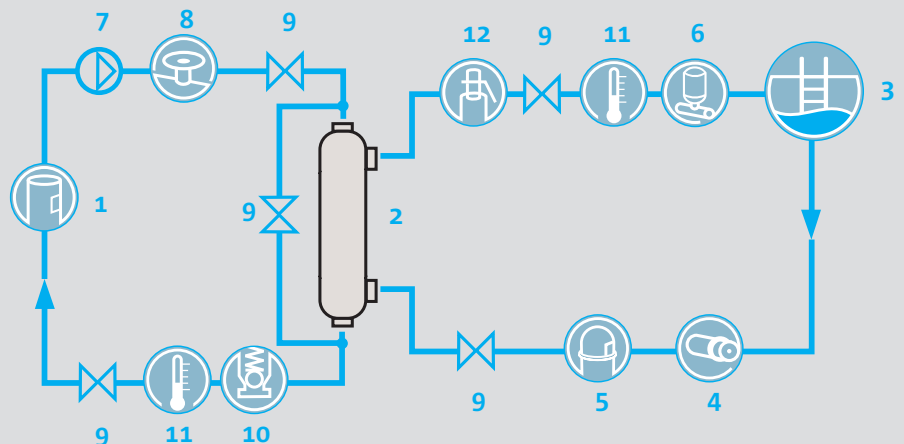


Swimming Pool Installation



Typical Swimming Pool Installation

1. Boiler
2. Heat Exchanger
3. Swimming Pool
4. Pump
5. Filtration
6. Chlorine Feeder
7. Circulation Pump
8. Flow Control Valve
9. Gate Valve
10. Check Valve
11. Thermometer
12. Safety Relief Valve



TW

TITANIUM

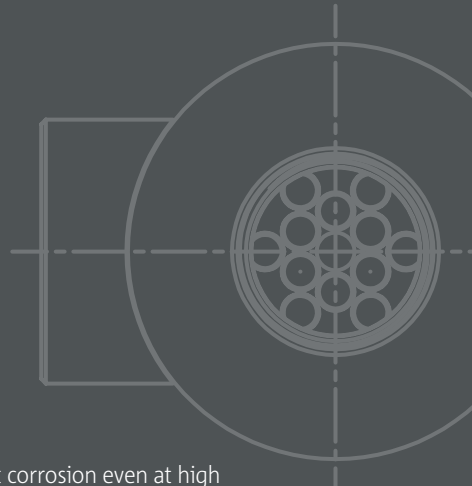
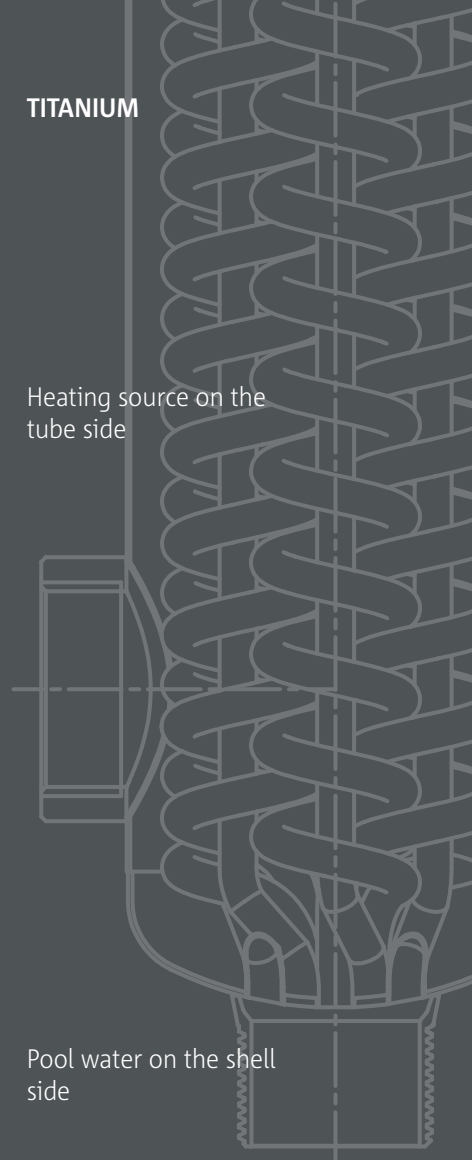
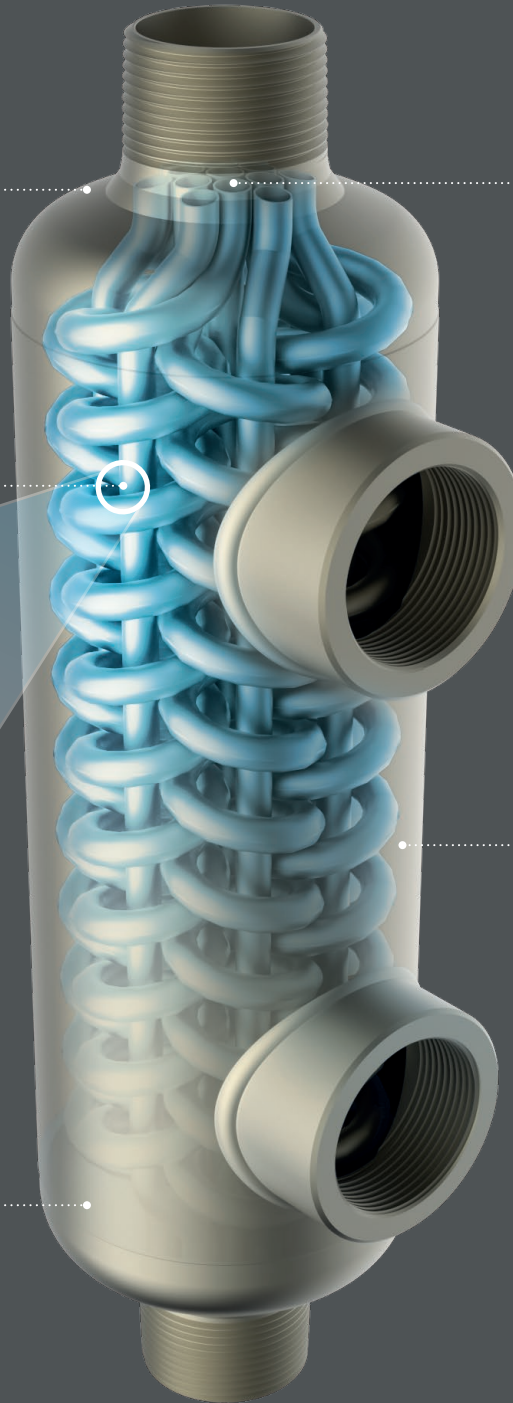
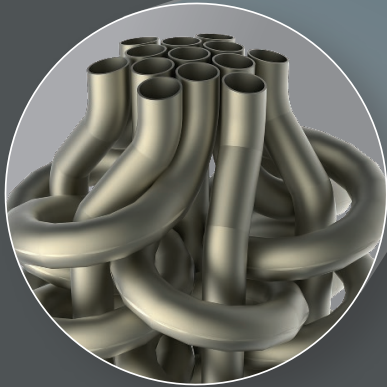
Complete titanium welded design

Heating source on the tube side

Unique helical 8mm heating coils

Pool water on the shell side

Vertical or horizontal installation



Typical Applications

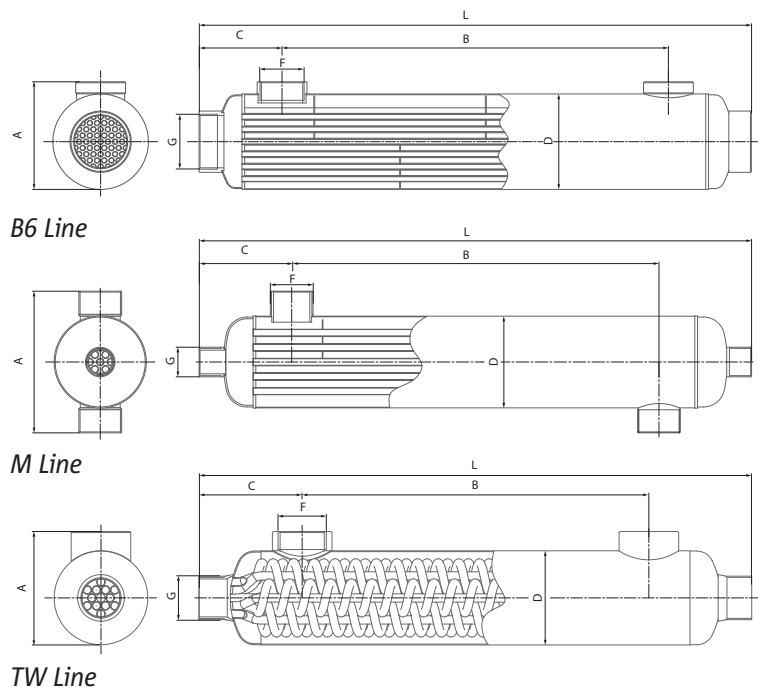
- Applications with extremely high salt water concentration
- Swimming pools heated by high temperature sources (steam, refrigerants, solar)
- Corrosive fluids

Distinct Advantages

- Total immunity to salt corrosion even at high temperatures
- Ultra-high thermal performance
- Coil expansion handles extreme temperature differences
- Light weight
- Condensate sub-cooling

Technical Product Specifications

Heat Exchanger Model	Dimensions										Connections		Heat Transfer Area	
	L		A		B		C		Ø D		F	G	m ²	sq ft
	mm	in	mm	in	mm	in	mm	in	mm	in	Shell	Tubes		
B6-280	400.0	15.7	94.5	3.7	240.0	9.4	80.0	3.1	80.0	3.1	1"	1½"	0.47	5.10
B6-390	373.0	14.7	117.6	4.6	193.0	7.6	90.0	3.5	103.6	4.1	1½"	2"	0.60	6.50
B6-700	622.0	24.5	117.6	4.6	442.0	17.4	90.0	3.5	103.6	4.1	1½"	2"	1.15	12.40
B6-1200	1075.0	42.3	117.6	4.6	895.0	35.2	90.0	3.5	103.6	4.1	1½"	2"	2.14	23.00
M-180	402.1	15.8	160.0	6.3	193.0	7.6	104.6	4.1	103.6	4.1	1½"	1"	0.44	4.70
M-300	651.1	25.6	160.0	6.3	442.0	17.4	104.6	4.1	103.6	4.1	1½"	1"	0.84	9.00
M-500	1 104.1	43.5	160.0	6.3	895.0	35.2	104.6	4.1	103.6	4.1	1½"	1"	1.56	16.80
TW-100	332.6	13.1	108.9	4.3	134.6	5.3	99.0	3.9	90.4	3.6	1½"	1¼"	0.21	2.24
TW-200	530.6	20.9	108.9	4.3	332.6	13.1	99.0	3.9	90.4	3.6	1½"	1¼"	0.38	4.15
TW-300	758.6	29.9	108.9	4.3	560.6	22.1	99.0	3.9	90.4	3.6	1½"	1¼"	0.58	6.26
TW-400	910.6	35.9	108.9	4.3	712.6	28.1	99.0	3.9	90.4	3.6	1½"	1¼"	0.72	7.71



Standard materials

B6 LINE Stainless Steel 316 L

M LINE Nicrom-24

TW LINE Titanium

Maximum allowable working pressure

B6 LINE 10 bar / 150 PSIG

M LINE 10 bar / 150 PSIG

TW LINE 10 bar / 150 PSIG

Maximum allowable working temperature

B6 LINE 208°C / 406°F

M LINE 208°C / 406°F

TW LINE 120°C / 248°F

Heat Exchanger Model	Nominal Capacity		Hot Water Side				Cold Water Side			
			flow		pressure drop		flow		pressure drop	
	kW	BTU/h	l/min	USGPM	kPa	PSI	l/min	USGPM	kPa	PSI
B6-280	82	280,000	125	33.0	22.4	3.3	250	66.1	14.8	2.2
B6-390	114	390,000	260	68.7	30.6	4.4	520	137.4	26.8	3.9
B6-700	205	700,000	215	56.8	14.3	2.1	430	113.6	25.0	3.6
B6-1200	352	1,200,000	238	62.9	25.2	3.7	476	125.8	47.0	6.8
M-180	53	180,000	100	26.4	7.0	1.0	150	39.6	8.7	1.3
M-300	88	300,000	105	27.7	8.2	1.2	157	41.6	8.6	1.3
M-500	146	500,000	120	31.7	11.4	1.7	180	47.6	11.8	1.7
TW-100	29	100,000	17	4.6	6.1	0.9	38	10.0	0.3	0.1
TW-200	57	200,000	28	7.5	26.7	3.9	61	16.0	1.4	0.2
TW-300	87	300,000	36	9.5	63.2	9.2	76	20.0	2.9	0.4
TW-400	113	400,000	35	9.1	71.7	10.4	265	70.0	40.7	5.9

Nominal Capacity Values are based on heating water 180°F (82.2°C) and return pool water 80°F (26.7°C)



We are certified by renowned international inspection authorities. Our quality process and management systems fulfill the requirements of ISO 9001 Quality Management System. AIC heat exchangers are designed, tested and manufactured in accordance with ASME (Section IV and VIII) and PED (97/23/UE) regulations.



Advanced Industrial Components Inc. (AIC)

2899 Portland Drive
Oakville, ON L6H 5S4, Canada

☎ 905.829.4666

☎ 905.829.4646

TOLL-FREE: 1-888-738-1350

www.aicheatexchangers.com

Authorized Representative