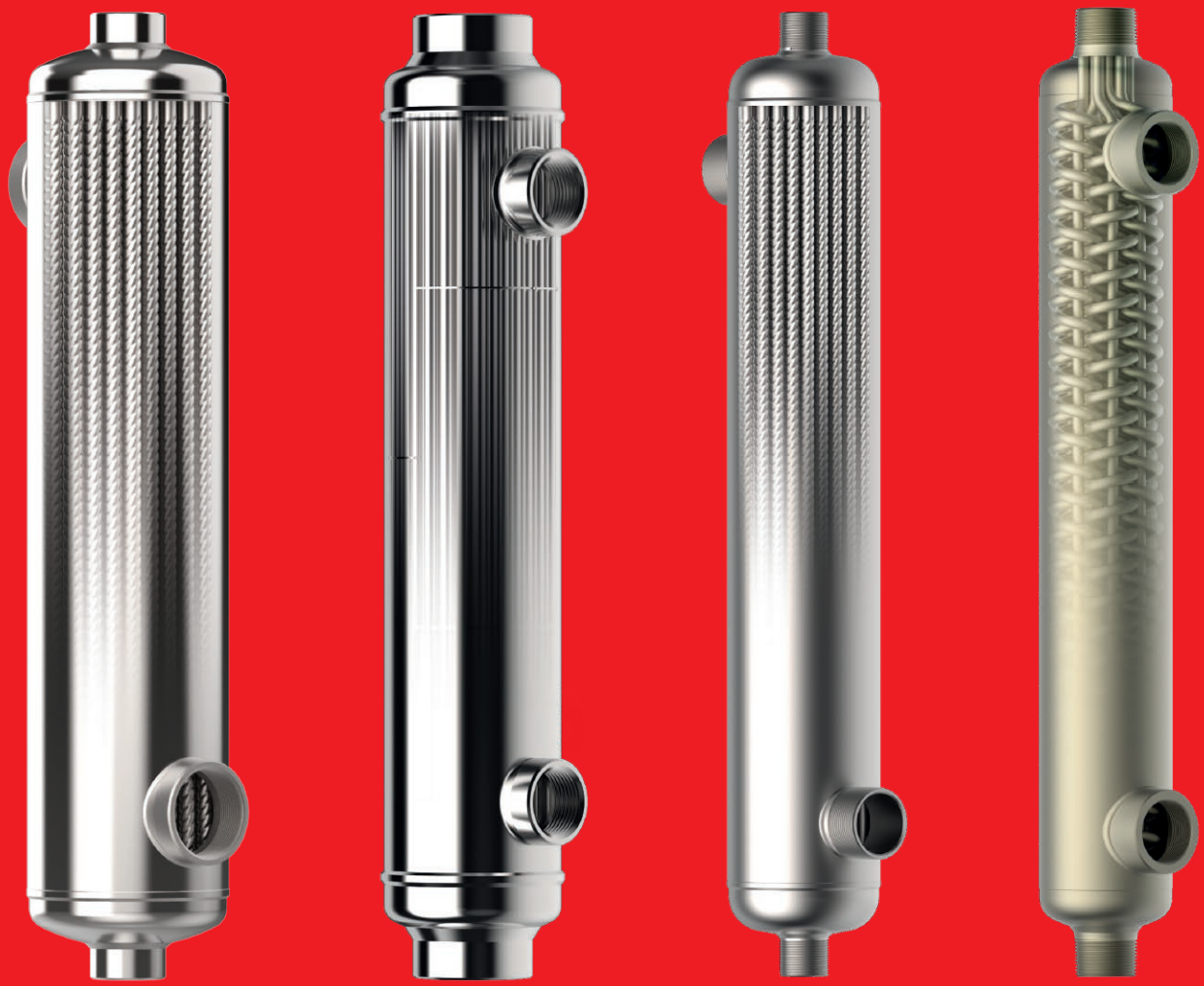
SWIMMING POOL HEAT EXCHANGERS | aicoi



be> | b_6 | m: | TW

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.

1. Calculate Your Pool Capacity

Rectangular pool:
- capacity[m^3] = 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 [m^3] = 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 Standard chlorinated pools Chloride concentration below 140mg/l Chlorine concentration below 0.8mg/l (long term) Chlorine concentration below 1.2mg/l (short term)	Salinated pools Salt water applications Chloride concentration above 400mg/l Chlorine concentration above 0.8mg/l (long term) Chlorine concentration above 1.2mg/l (short term)	Complete immunity to chorine and chlorides Salt water systems involving elevated temperatures (e.g. steam) Pool systems using refrigerants as a heating source

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.

3. Evaluate The Boiler Capacity

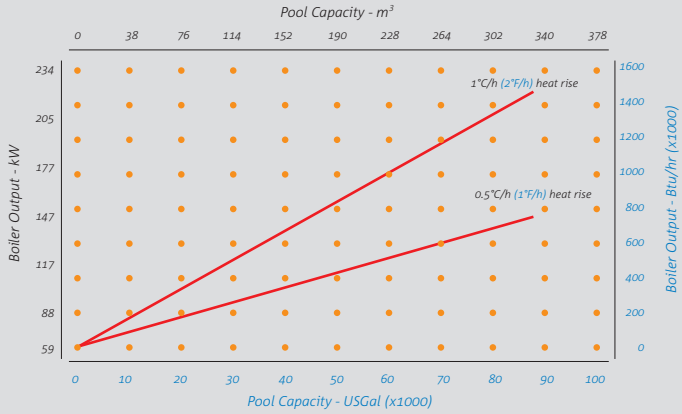
Ensure that your boiler has enough capacity to reach the required pool temperature, and to maintain it at this temperature through daily use.

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

Heat Loss [kW] = 0,0682 x [pool surface area [m^2]] x [pool temperature [°C] – air temperature [°C]]

Heat Loss [Btu/hr] = 12x [pool surface area [sqft]] x [pool temperature [°F] – air temperature [°F]]

Boiler Selection Chart



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

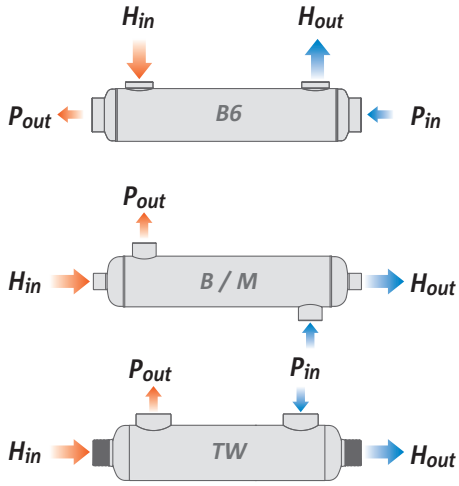
Nominal Pool Capacity

Heat Exchanger Model	Pool Capacity	
	m³	USGal
B-45	12	3000
B-70	24	6000
B-130	40	11000
B-180	60	16000
B-250	80	22000
B-300	100	27000
B-500	170	44000
B-1000	330	88000
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

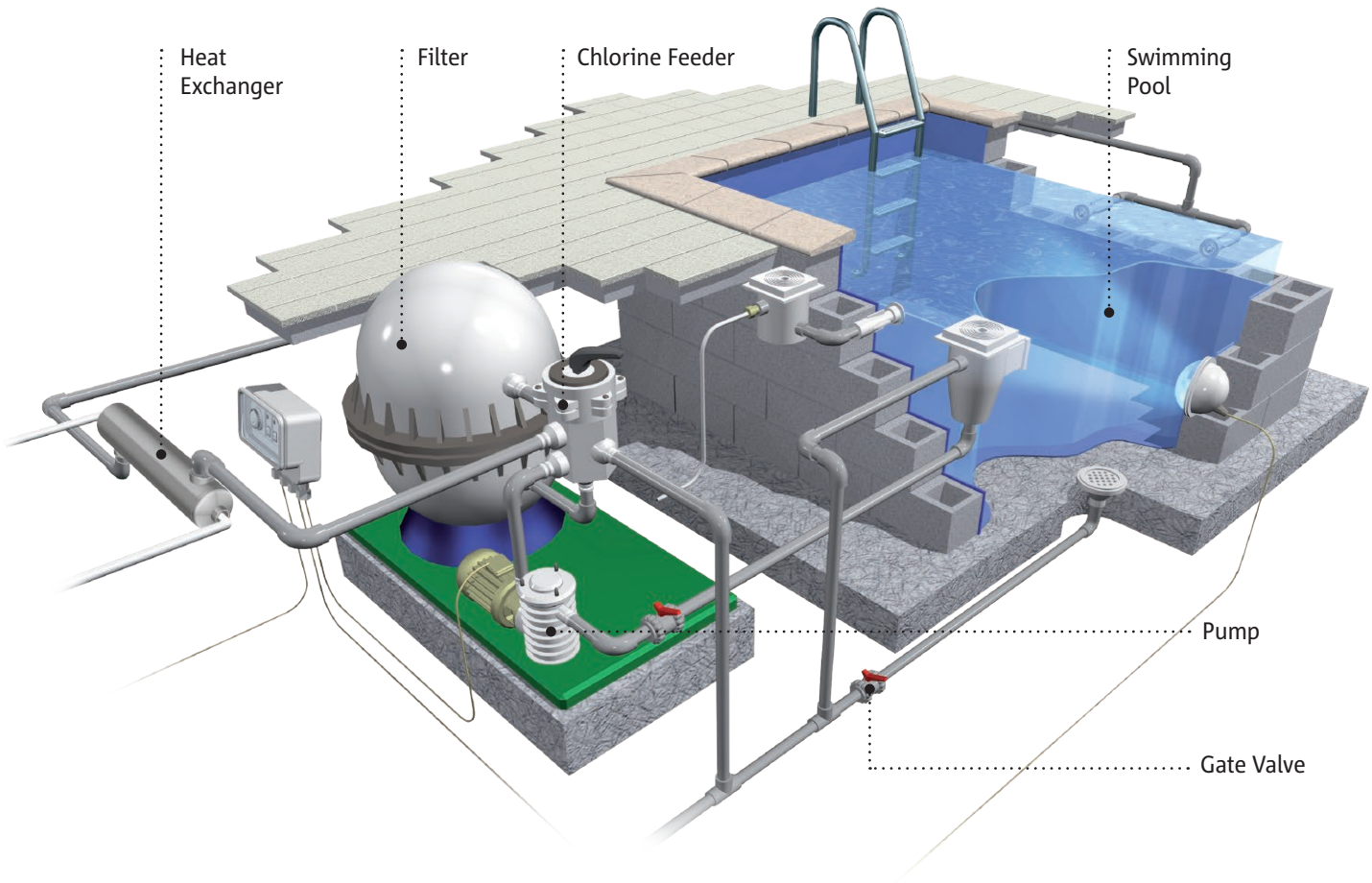
Based on 180°F (82.2°C) supply water and specified nominal flows.
See Technical Product Specifications table.
For general reference only. Please consult our office for product selection verification.

Flow Direction

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

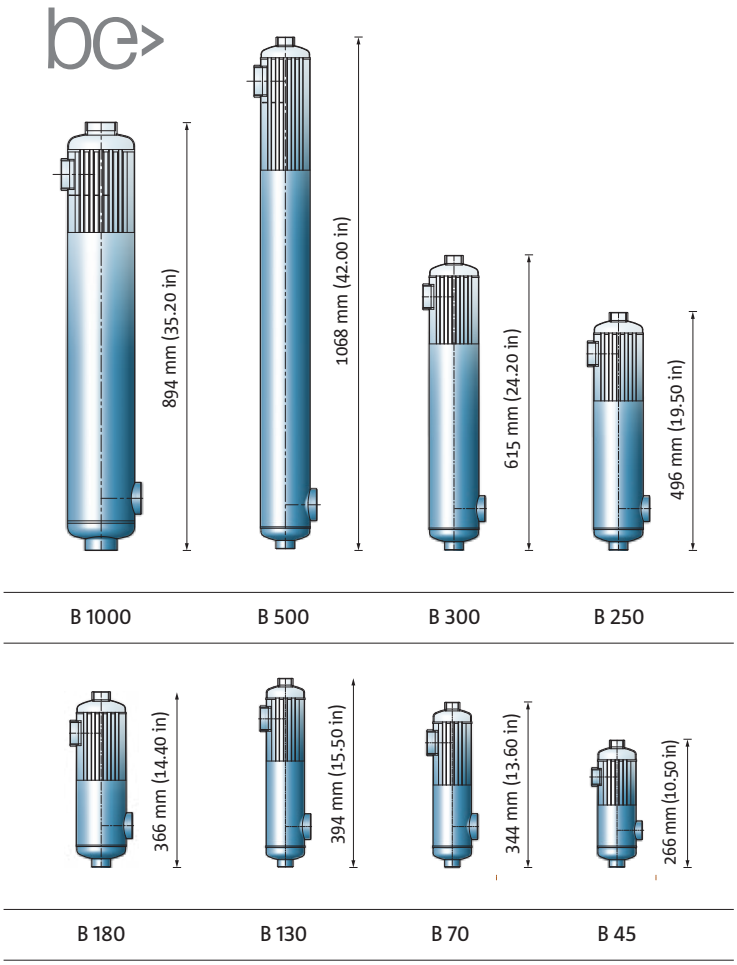


Swimming Pool Installation



B line

B-Line heat exchangers are fabricated with the distinctive AIC helically corrugated tube design.
Intended for use with high fluid flows and low temperature variances, these robust, compact heat exchangers are ideal for many residential and industrial applications.
B-Line's complete stainless welded structure ensures product strength and high quality performance.



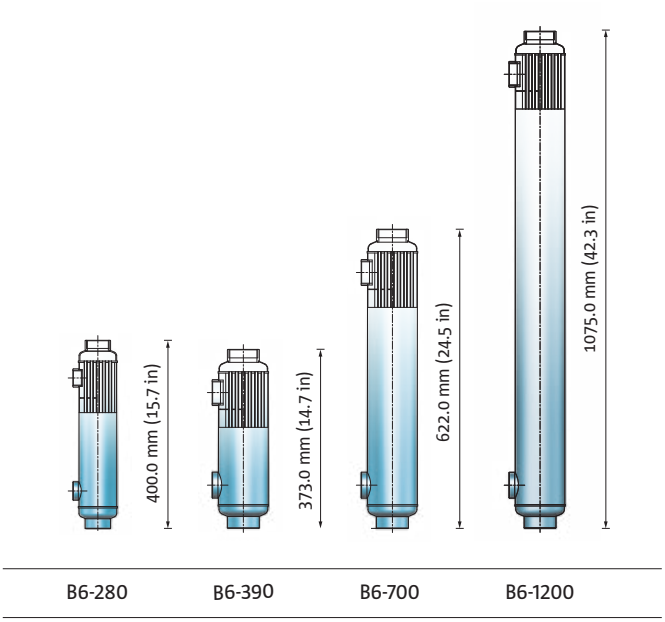
B Line

SS 316L

B6 line

A product with a purpose. Complete welded construction with high strength 316L stainless steel and 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.



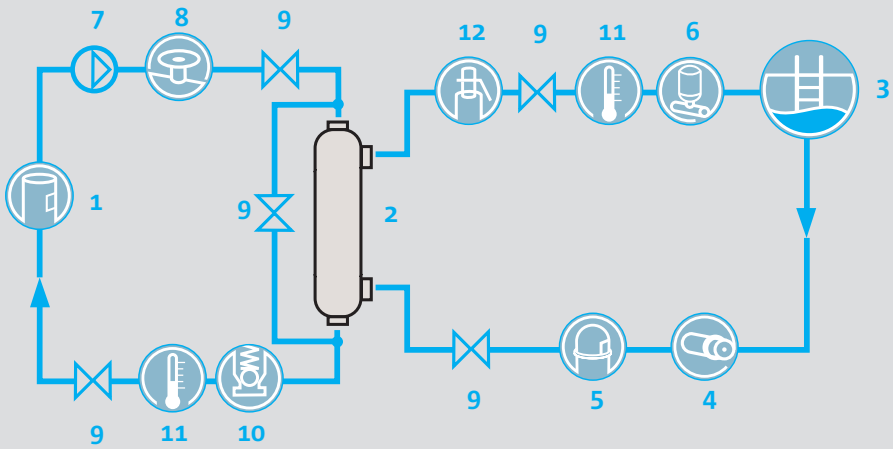
B6 Line

SS 316L

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*

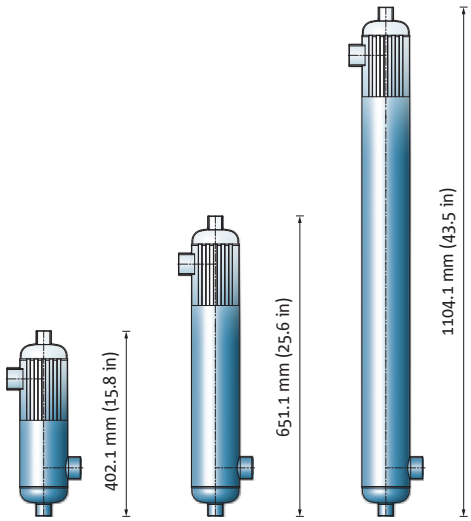
B, M, TW Installation



M line

Combine engineering ingenuity with nature's vitality to 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-180 M-300 M-500

M Line

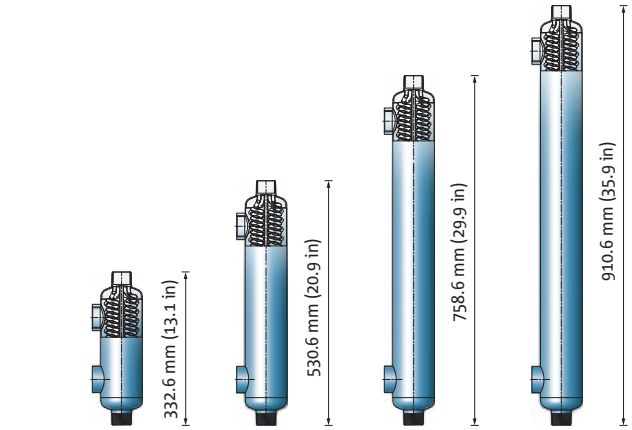
NICROM-24

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

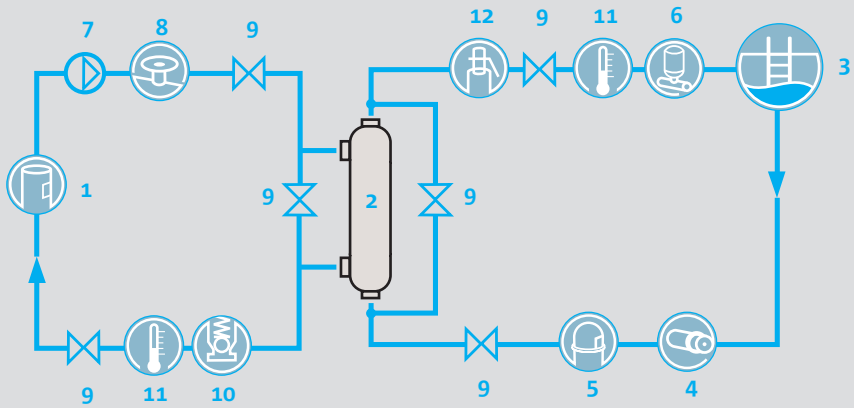


TW-100 TW-200 TW-300 TW-400

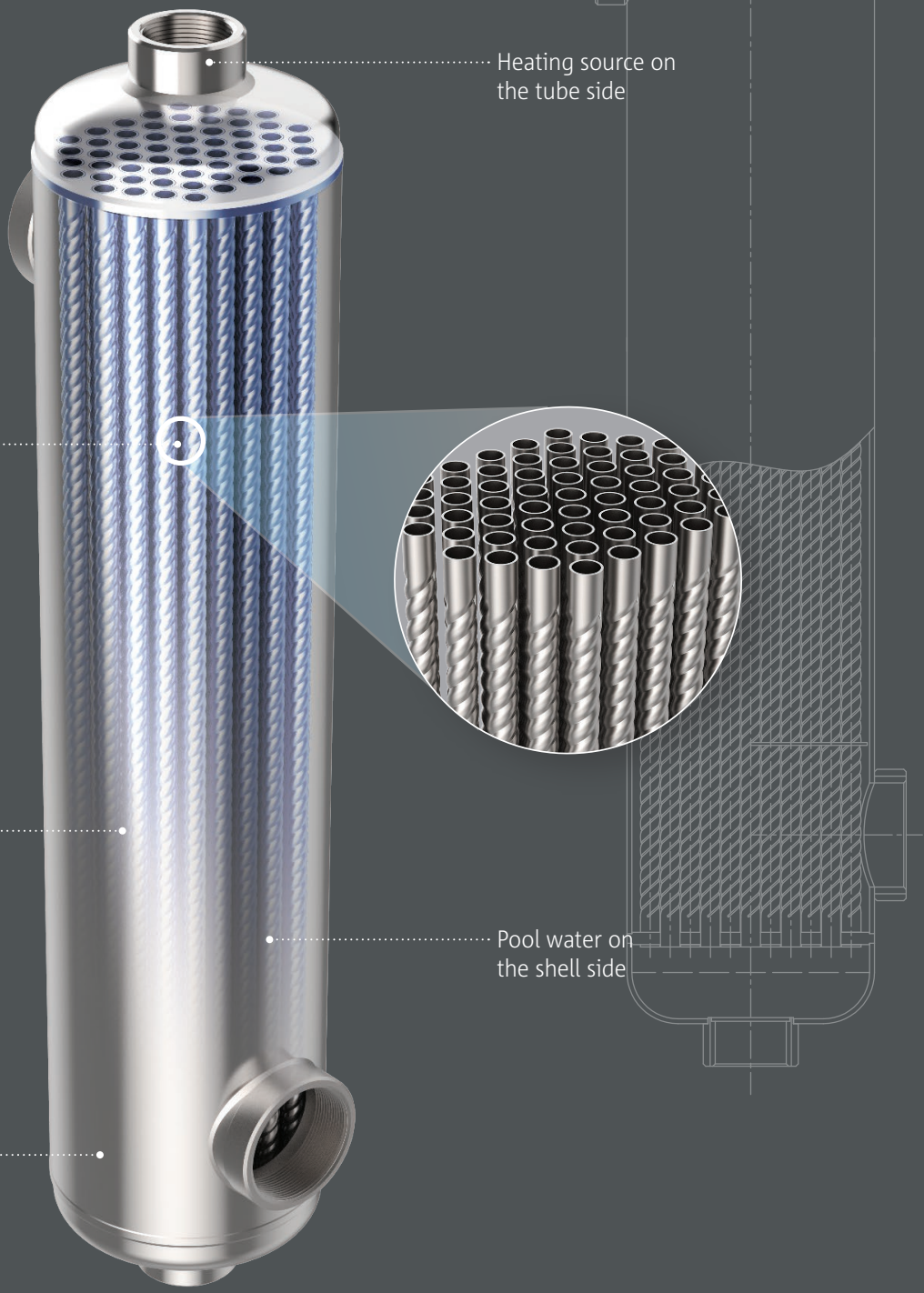
TW Line

TITANIUM

B6 Installation



STAINLESS STEEL 316L



Typical Applications

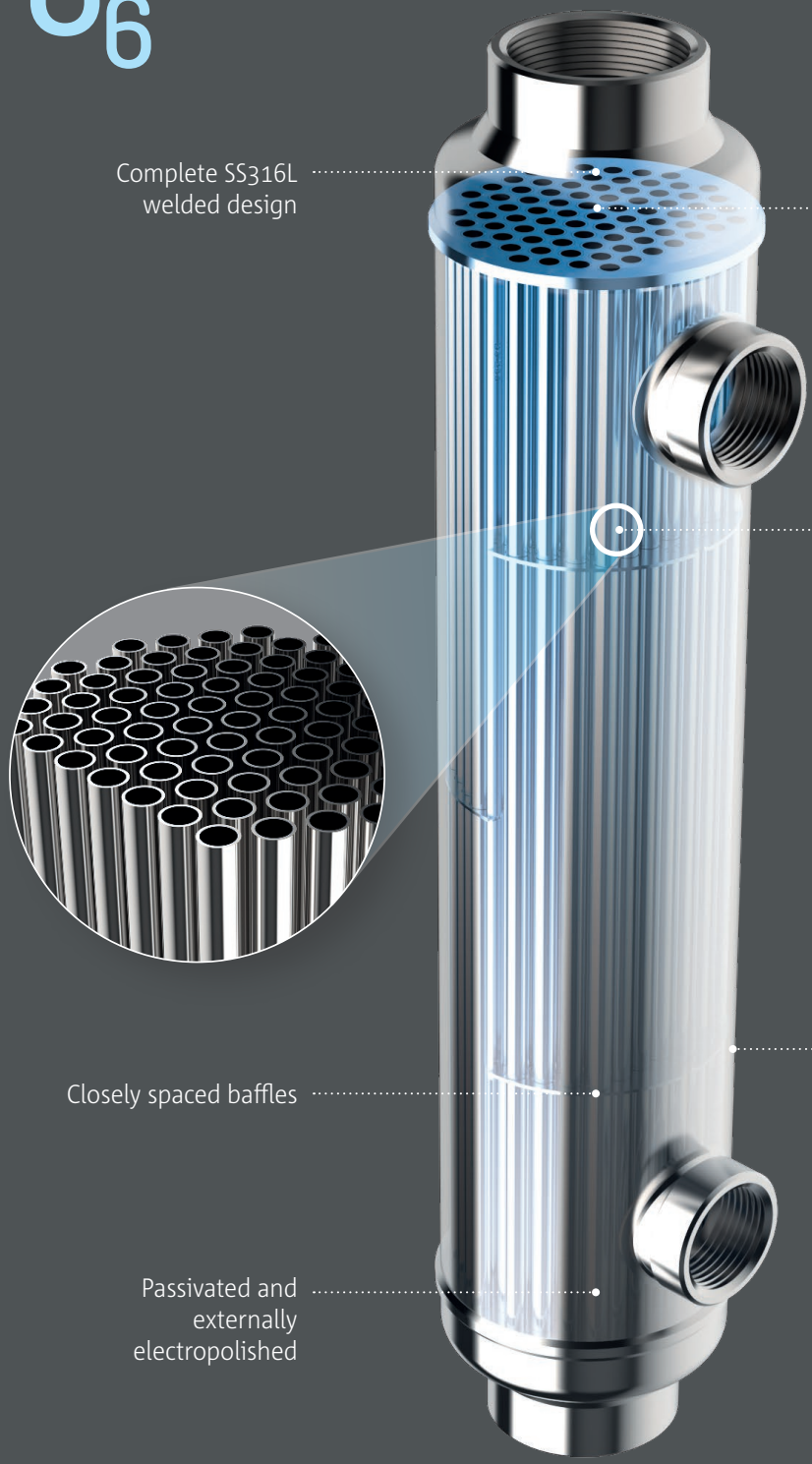
- Standard swimming pools
- Spa / hot tubs
- Fresh water applications
- Waste water heat recovery systems
- Boiler sample coolers
- Pool heating with higher source temperature

Advantages

- Robust and compact design requires minimum installation space
- Perfectly suited for applications with high fluid flows
- Low pressure drops

b6

STAINLESS STEEL 316L



Typical Applications

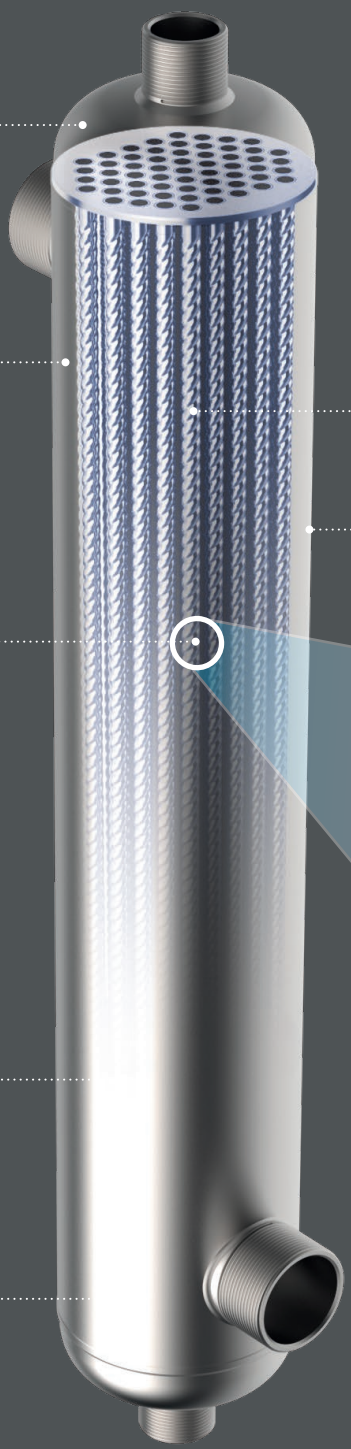
- Standard chlorinated pools
- Fresh water applications
- Pool heating with low temperatures (condensing boilers, geothermal)
- Oil/glycol coolers
- In-floor heating

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).



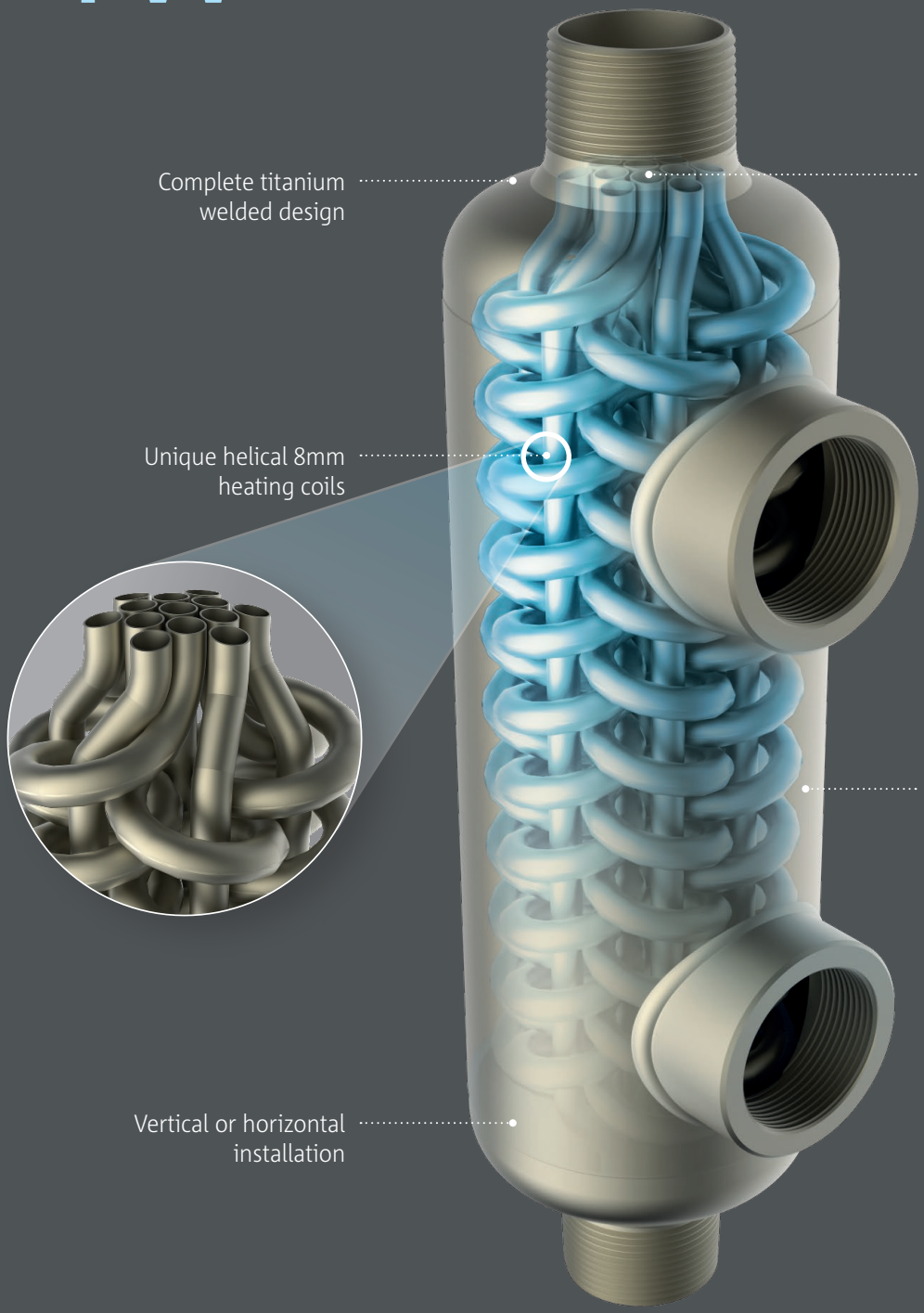
Typical Applications

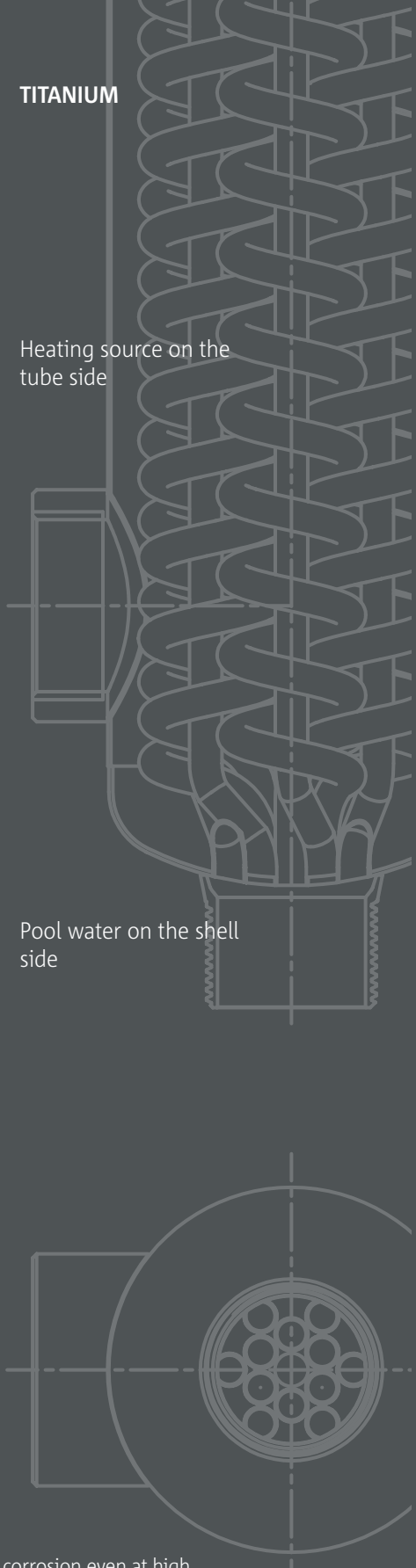
- Salt water swimming pools, spas, hot tubs
- Marine oil coolers
- Waste water heat recovery

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

TW





Typical Applications

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

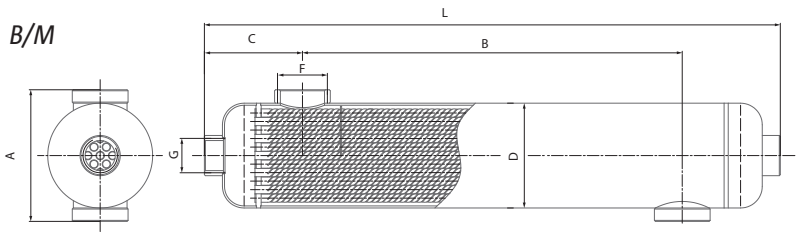
Distinct Advantages

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

Pool Heaters Technical Product Specifications

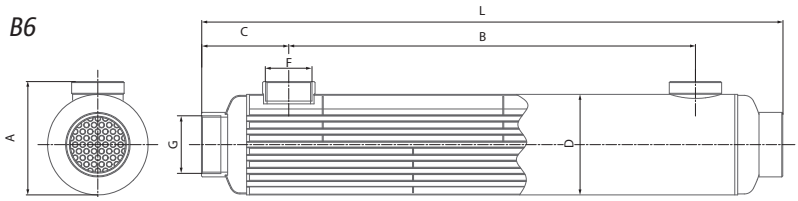
Heat Exchanger Model	Geometrical dimensions												Heat Transfer Area	
	L		A		B		C		Ø D		F	G		
	mm	in	mm	in	mm	in	mm	in	mm	in			m²	sq ft
B 45	265,7	10.5	106	4.2	111.5	4.4	77,1	3.0	80	3.1	1″	¾″	0,18	1.97
B 70	344,2	13.6	106	4.2	175	6.9	84,6	3.3	80	3.1	1½″	¾″	0,26	2.79
B 130	394,2	15.5	106	4.2	225	8.9	84,6	3.3	80	3.1	1½″	¾″	0,31	3,30
B 180	366	14.4	130	5.1	193	7.6	86,5	3.4	103,6	4.1	1½″	1″	0,47	4.91
B 250	496	19.5	130	5.1	323	12.7	86,5	3.4	103,6	4.1	1½″	1″	0,68	7.29
B 300	615	24.2	130	5.1	442	17.4	86,5	3.4	103,6	4.1	1½″	1″	0,87	9.38
B 500	1 068	42.0	131,2	5.2	884	34.8	92	3.6	103,6	4.1	2″	1″	1,61	17.32
B 1000	894	35.2	167	6.6	676	26.6	109	4.3	139,7	5.5	2″	2″	2,20	23.68
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	6.3	193	7.6	104,6	4.1	103,6	4.1	1½″	1″	0,44	4.70
M 300	651,1	25.6	160	6.3	442	17.4	104,6	4.1	103,6	4.1	1½″	1″	0,84	9.00
M 500	1 104,1	43.5	160	6.3	859	33.8	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	–	–	90,4	3.6	1½″	1¼″	0,21	2.24
TW 200	530,6	20.9	108,9	4.3	332,6	13.1	–	–	90,4	3.6	1½″	1¼″	0,38	4.15
TW 300	758,6	29.9	108,9	4.3	560,6	22.1	–	–	90,4	3.6	1½″	1¼″	0,58	6.26
TW 400	910,6	35.9	108,9	4.3	712,6	28.1	–	–	90,4	3.6	1½″	1¼″	0,72	7.71

B/M



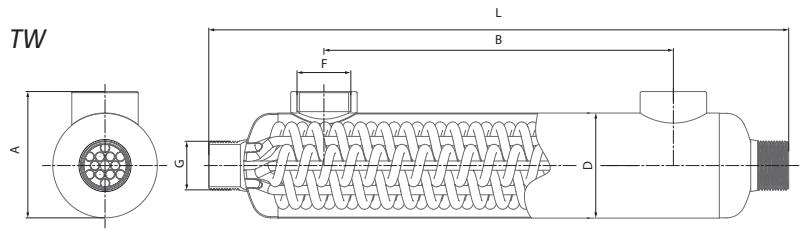
Tube side hot/shell side cold

B6



Tube side cold/shell side hot

TW



Tube side hot/shell side cold

Nominal Performance

Heat Exchanger Model	Nominal Capacity		Hot Water Side				Cold Water Side			
			flow		pressure drop		flow		pressure drop	
	kW	BTU/h	l/min	USGPM	kPa	PSIG	l/min	USGPM	kPa	PSIG
B 45	13	45,000	94	25	24,8	3.6	152	40	22,7	3.3
B 70	20	70,000	94	25	25,6	3.7	152	40	26,2	3.8
B 130	38	130,000	94	25	26,2	3.8	152	40	30,6	4.4
B 180	53	180,000	150	40	24,0	3.5	227	60	26,2	3.8
B 250	73	250,000	150	40	25,0	3.6	227	60	31,7	4.6
B 300	88	300,000	150	40	25,5	3.7	227	60	33,1	4.8
B 500	146	500,000	150	40	27,0	3.9	227	60	24,8	3.6
B 1000	293	1 000,000	451	120	25,5	3.7	451	120	40,0	5.8
B6 280	82	280,000	125	33.0	16,6	2.4	250	66.1	18,6	2.7
B6 390	114	390,000	260	68.7	27,6	4.0	520	137.4	26,8	4.3
B6 700	205	700,000	215	56.8	22,7	3.3	430	113.6	25,0	3.8
B6 1200	352	1 200,000	238	62.9	44,1	6.4	476	125.8	47,0	6.8
M 180	53	180,000	150	40	24,0	3.5	227	60	26,2	3.8
M 300	88	300,000	150	40	25,5	3.7	227	60	33,1	4.8
M 500	146	500,000	150	40	27,0	3.9	227	60	24,8	3.6
TW 100	29	100,000	75	20	22,3	3.2	227	60	37,2	5.4
TW 200	57	200,000	75	20	32,3	4.7	227	60	40,5	5.9
TW 300	87	300,000	75	20	44,3	6.4	227	60	44,1	6.4
TW 400	113	400,000	75	20	52,7	7.6	227	60	46,2	6.7

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

Standard materials	
B LINE	stainless steel 316 L
B6 LINE	stainless steel 316 L
M LINE	Nicrom-24
TW LINE	grade I titanium
Maximum allowable working pressure	
B LINE - shell side	10 bar / 150 PSIG
B LINE - tube side	13 bar / 200 PSIG
B6 LINE - shell/tube side	10 bar / 150 PSIG
M LINE - shell/tube side	10 bar / 150 PSIG
TW LINE - shell/tube side	10 bar / 150 PSIG
Maximum allowable working temperature	
B LINE - shell/tube side	208°C / 406°F
B6 LINE - shell/tube side	208°C / 406°F
M LINE - shell/tube side	208°C / 406°F
TW LINE - shell/tube side	120°C / 248°F

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.

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