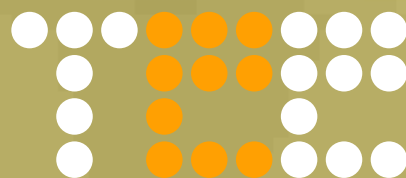


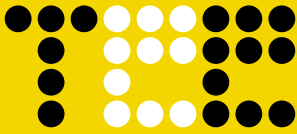
TITANIUM Heat Exchangers



TITANIUM

Innovative Engineering





**Heat
Exchange
surface
made
entirely
of pure
Titanium**



Tee Line innovation

The innovative distinct Tee Line design is a fusion of functionality and cutting edge thermal technology. The unique geometry of the Tee Line optimizes flow turbulence and increases the heat transfer coefficient, and along with its versatile assembly, provides the perfect solution for your diverse applications.

Typical applications:

- swimming pools, spas, hot tubs
- in floor heating
- driveway snowmelt
- evaporators / condensers
- marine/ saltwater applications (titanium-coil version)

The Tee line can utilize heat from almost any source, including the following:

- Boiler water
- Waste water
- Steam
- Solar power
- Heat pumps
- Refrigerants

Titanium technology:

Designed for environments that are typically considered corrosive to standard materials, the combination of titanium and composite materials make the Tee Line products ideal for use in marine, salt water, and other aggressive applications.

As part of our value focused family of products, we are introducing a heat exchanger that is efficient in nature, compact in design, and innovative at heart.

Pool applications:

The Tee Line construction is designed for all types of swimming pool applications, including salt water pools.

Follow a few simple steps to determine which Tee Line model will best suit your requirements:

1. Calculate your pool capacity

Rectangular pool :

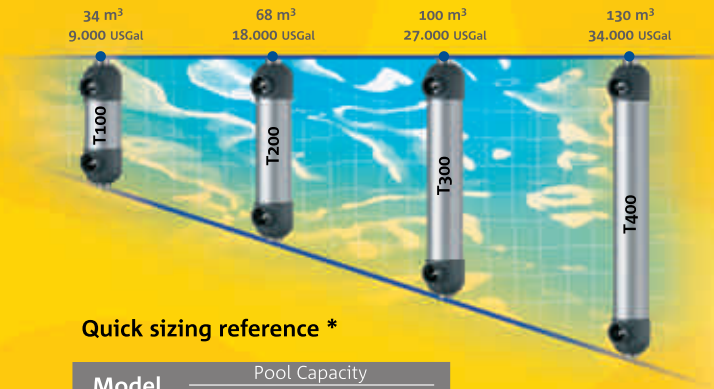
- capacity[m³] = length [m] x width [m] x average depth [m]
- capacity[USGal] = 7.5 x length [ft] x width [ft] x average depth [ft]

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]

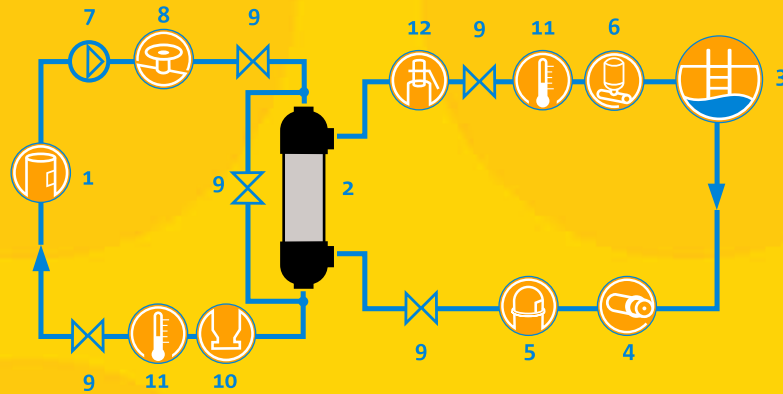
* Based on 60°C (140°F) temperature difference between boiler water and swimming pool water.
These are nominal values only and are to be treated as a guideline.
Consult our office for product selection verification.

Quick sizing reference chart *



Quick sizing reference *

Model	Pool Capacity	
	m ³	USGal
T100	34	9000
T200	68	18000
T300	100	27000
T400	130	34000



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

2. Determine Tee Line coil material

The Tee Line is available with either titanium coils or stainless steel SS316L coils, depending on the application:

Titanium coil:

- Salt water applications
- Salt chlorination pools
- High chlorine-concentration pools

Stainless steel SS316L coil:

- Fresh water applications
- Standard chlorinated pools
- Chloride concentration below 400mg/l
- Chlorine concentration below 0.8mg/l (long term) or 1.2 mg/l (short term)

A corrosive environment is often the result of multiple variables, not just chemical levels. Select a titanium coil if your application is deemed to be corrosive to stainless steel.

3. Evaluate the boiler capacity

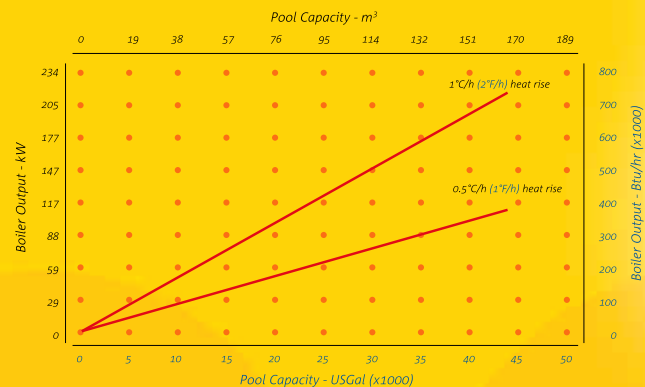
Ensure that your boiler has enough capacity to reach the required pool temperature, and to maintain it at this temperature through daily use.

Boiler selection Chart

How fast would you like to heat up your swimming pool ?*

* Based on 60°C (140°F) temperature difference between boiler water and swimming pool water.

Boiler selection



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

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

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



support ring

glass reinforced material

shell gasket

titanium or stainless heat transfer surface

titanium or stainless connection

Each Tee Line model is equipped with:

- removable titanium or stainless steel heating coils
- thermoplastic, glass reinforced head
- PVC, rigid composite body
- installation mounting brackets

Unique geometry optimizes flow turbulence and increases heat transfer coefficient

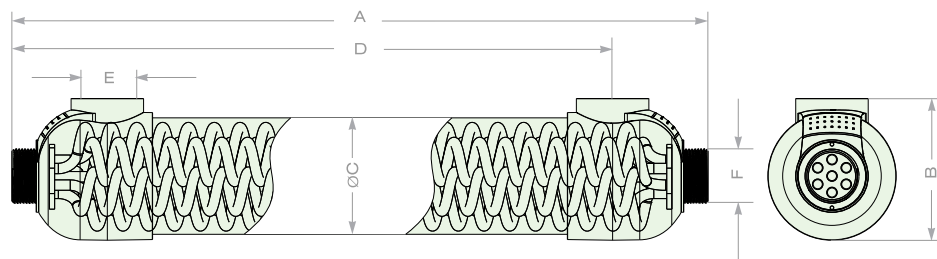


Engineering Data

Heat Exchanger Nominal Performance

Heat Exchanger Type	Nominal Capacity		Hot Water				Cold Water			
			Flow		Pressure drop		Flow		Pressure drop	
	kW	Btu/hr	l/min	USGPM	kPa	psig	l/min	USGPM	kPa	psig
T100	29	98000	22	5.8	11	1.6	250	66	9	1.3
T100SS	29	98000	22	5.8	11	1.6	250	66	9	1.3
T200	57	195000	30	7.9	28	4.1	300	80	16	2.3
T200SS	57	195000	30	7.9	28	4.1	300	80	16	2.3
T300	87	298000	35	9.2	38	5.5	350	92	20	2.9
T300SS	87	298000	35	9.2	38	5.5	350	92	20	2.9
T400	113	385000	40	10.6	65	9.4	400	106	25	3.6
T400SS	113	385000	40	10.6	65	9.4	400	106	25	3.6

Nominal values are based on 60°C (140°F) temperature difference between incoming heating and heated water



Dimensions

Heat Exchanger Type	A		B		C		D		E	F
	mm	in	mm	in	mm	in	mm	in	size	size
T100 / T100SS	343	13.50	110	4.31	90	3.54	192	7.55	1 1/2"	1 1/4"
T200 / T200SS	541	21.30	110	4.31	90	3.54	390	15.35	1 1/2"	1 1/4"
T300 / T300SS	769	30.28	110	4.31	90	3.54	618	24.33	1 1/2"	1 1/4"
T400 / T400SS	921	36.26	110	4.31	90	3.54	771	30.35	1 1/2"	1 1/4"

At AIC we constantly strive to engineer, design, and develop new products for a changing marketplace, and we will continue our tradition of providing customers with unique solutions to their most demanding needs.

Our stringent quality processes and management systems fulfill and are certified to the requirement of ISO9001.



Design Parameters

Shell side pressure	4 bar (60 psi)
Shell side temperature	60°C (140°F)
Tube side pressure	10 bar (150 psi)
	40 bar (580 psi) <i>refrigerant version</i>
Tube side temperature	120°C (248°F)

Standard Materials

HELICAL COIL	Titanium or SS316L
SHELL	PVCU
HEAD	Glass Fiber reinforced PPA
GASKETS	EPDM
TIGHTENING RINGS	Stainless steel
SUPPORT BRACKETS	PP



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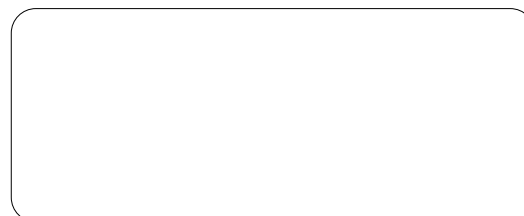
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