

RVBH-T

TITANIUM BARREL/TANK/SHELL & TUBE TYPE HEAT EXCHANGER

INTRODUCTION

Titanium twisted tube heat exchangers are widely utilized across a diverse range of applications requiring efficient and corrosion-resistant thermal transfer. These include swimming pools, aquaculture systems such as fish ponds and aquariums for precise temperature control, as well as marine and seawater-based temperature regulation systems.

Owing to titanium's exceptional resistance to corrosion, these heat exchangers are particularly suitable for handling aggressive media, including seawater, acidic and alkaline solutions, and saline environments. As a result, they are extensively applied in industries such as chemical processing, sewage and wastewater treatment, and surface treatment operations.

Furthermore, titanium offers significant advantages including high strength-to-weight ratio, excellent durability, and non-toxic, contamination-free properties. These characteristics make it an ideal material for use in highly sensitive applications such as aerospace, medical equipment, pharmaceuticals, and food and beverage processing industries—including brewing, beverage production, and distilled water systems.

Overall, titanium twisted tube heat exchangers provide a reliable, long-lasting, and hygienic solution for demanding thermal management applications across multiple sectors.

TECHNICAL EDGE

- 1. Superior Heat Transfer Performance:** The advanced corrugated (twisted) tube design significantly enhances turbulence within the fluid, resulting in outstanding heat transfer efficiency. Compared to conventional straight titanium tubes of the same diameter, wall thickness, and length, thermal performance is improved by 1.3 to 2.6 times, enabling faster and more energy-efficient temperature control.
- 2. Exceptional Corrosion Resistance & Reliability:** Manufactured using Grade 1 titanium in compliance with GB/T 3625-1995 standards, these heat exchangers are engineered for the most demanding environments. Each unit undergoes rigorous quality testing, including:
 - a. High-pressure testing up to 43 bar
 - b. Precision halogen leak detection
 - c. 100,000-cycle fatigue testing at 4.5 bar
 - d. This ensures long-term durability, zero leakage, and reliable operation even in highly corrosive media such as seawater, acids, and alkaline solutions.
- 3. Enhanced Anti-Scaling & Low Maintenance Design:** The seamless, weld-free corrugated tube construction minimizes weak points and significantly reduces the risk of leakage. The induced turbulent flow effectively inhibits scale formation and fouling, leading to:
 - a. Extended service life
 - b. Consistent thermal efficiency
 - c. Reduced maintenance and operational costs
- 4. Robust and Corrosion-Resistant Shell Construction:** The outer shell is manufactured using high-grade PVC, offering excellent resistance to acids, alkalis, and corrosive environments. Designed to withstand operational pressure while maintaining structural integrity, the unit is also RoHS compliant, ensuring environmental safety and sustainability.
- 5. Compact, Lightweight & Installation-Friendly Design:** With a sleek and compact structure, the heat exchanger delivers high performance without occupying excessive space. Its lightweight construction, combined with strong strain compensation capability, allows for easy handling and installation across a wide range of applications.



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SWIMMING POOL HEAT EXCHANGER

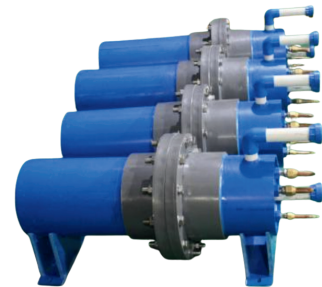
This heat exchanger features a high-strength rigid PVC shell combined with premium titanium tubes, ensuring excellent durability and efficient heat transfer. The unit offers superior resistance to acids, alkalis, and corrosive environments, making it ideal for demanding applications such as water treatment and marine use.

Designed for reliability and aesthetics, it provides strong pressure-bearing capacity and is manufactured using environmentally compliant materials. Each unit is tested at 0.6–0.8 MPa to ensure safe and stable operation.

KEY HIGHLIGHTS

1. High-strength rigid PVC shell with enhanced durability
2. Excellent resistance to acid, alkali, and corrosive environments
3. Titanium tubes for superior heat transfer and longevity
4. Strong pressure-bearing capability for reliable operation
5. Environmentally compliant and safe materials
6. Tested for operational integrity at 0.6–0.8 MPa water pressure

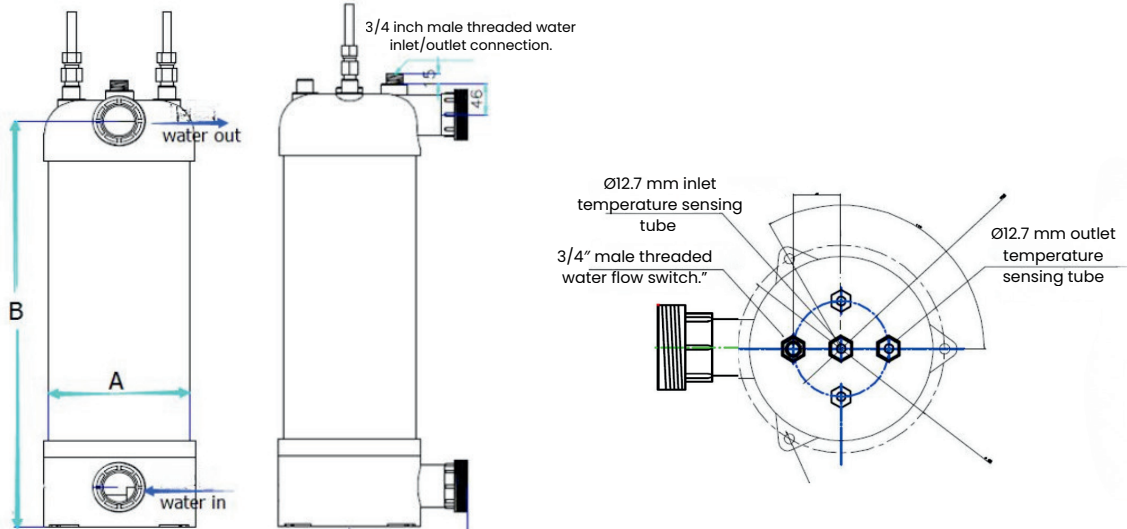
PRODUCT IMAGES



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TITANIUM BARREL/TANK/SHELL & TUBE TYPE HEAT EXCHANGER

DIAGRAM



TECHNICAL SPECIFICATION (PVC SHELL FOR SWIMMING POOL HEAT PUMP)

Item	Heating Capacity (KW)	Water Flow (m ³ /h)	PVC shell dimation A*B (mm)	Titanium tube specifications (mm)	Refrigerant inlet & outlet (mm)	Refrigerant inlet & outlet (mm)
RVBHT038-B1	3.8	1.8	Φ110*330	Φ12.7*0.6	Φ12.7/Φ12.7	50
RVBHT045-B1	4.5	2	Φ110*380			
RVBHT053-B1	5.3	2.5	Φ110*430			
RVBHT078-B1	7.8	3.5	Φ110*470			
RVBHT080-B1	8	3.8	Φ110*500			
RVBHT095-B1	9.5	4.2	Φ160*470			
RVBHT113-C1	11.3	5	Φ160*480	Φ16*0.6		
RVBHT120-C1	12	5.3	Φ160*530			
RVBHT125-C1	12.5	5.5	Φ200*550			
RVBHT140-C1	14	6.2	Φ200*620			
RVBHT170-C1	17	7.5	Φ200*660			
RVBHT210-D1	21	9.2	Φ200*760	Φ19*0.6		
RVBHT260-D1	26	12	Φ200*760			

- The dimensions listed in the table are for reference only; final specifications are subject to the approved drawings.
- Heating conditions: ambient temperature 20°C dry bulb / 15°C wet bulb, inlet water temperature 26°C, outlet water temperature 28°C. Maximum outlet water temperature: 35°C.

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TITANIUM BARREL/TANK/SHELL & TUBE TYPE HEAT EXCHANGER

TECHNICAL SPECIFICATION (PVC SHELL FOR COOLING WATER)

Item	Cooling Capacity (KW)	Water Flow (m ³ /h)	PVC shell dimension A*B (mm)	Titanium tube specifications (mm)	Refrigerant inlet & outlet (mm)	Refrigerant inlet & outlet (mm)
RVBHT035V-B1	3.5	0.8	Φ140*500	Φ12.7*0.6	Φ12.7/φ12.7	50
RVBHT050V-B1	5	1	Φ160*575			
RVBHT075V-C1	7.5	1.3	Φ160*480			
RVBHT100V-C1	10	1.8	Φ200*550	Φ16*0.6	Φ12.7/φ19	
RVBHT125V-D1	12.5	2.2	Φ200*640	Φ19*0.6		
RVBHT150V-D1	15	2.6	Φ250*590			
RVBHT180V-D1	18	3.1	Φ250*650			
RVBHT200V-D1	20	3.5	Φ250*715			
RVBHT250V-D2	25	4.3	Φ250*810			
RVBHT300V-D2	30	5.2	Φ250*1110			
RVBHT375V-D2	37.5	6.5	Φ250*1310			
RVBHT500V-D2	50	11	2-Φ250*810			

Note:

- The dimensions listed in the table are for reference only; final specifications are subject to the approved drawings.
- Heating conditions: ambient temperature 20°C dry bulb / 15°C wet bulb, inlet water temperature 24°C, outlet water temperature 19°C.

WORKING CONDITIONS

PVC-Titanium Heat Exchanger	Refrigerant side (inside titanium twisted tube)	Water side (in the shell)
Maximum Working Pressure	5.3MPa	0.5 MPa (default); 0.6–0.8 MPa
Normal Working Pressure	≤4.5MPa	0.3–0.4 MPa
Operating Temperature Range	-50-150° C	-10–35°C
Applicable Medium / Refrigerant Type	R22, R134a, R404a, R407c, R410a, R417a, R600a, etc.	Seawater, electroplating solutions, antifreeze, swimming pool water, groundwater, beverages, etc.
Remarks / Notes	<ol style="list-style-type: none"> Before initial operation, ensure the water system is completely vented; system pressure must not exceed the maximum allowable pressure. Maintain clean water quality; it is recommended to install a filter and perform regular cleaning. When the unit is not in use for an extended period, drain all liquid to prevent contamination, scaling, or freezing that may cause shell cracking. 	