MEGASUN®

SHELL AND TUBE HEAT EXCHANGER

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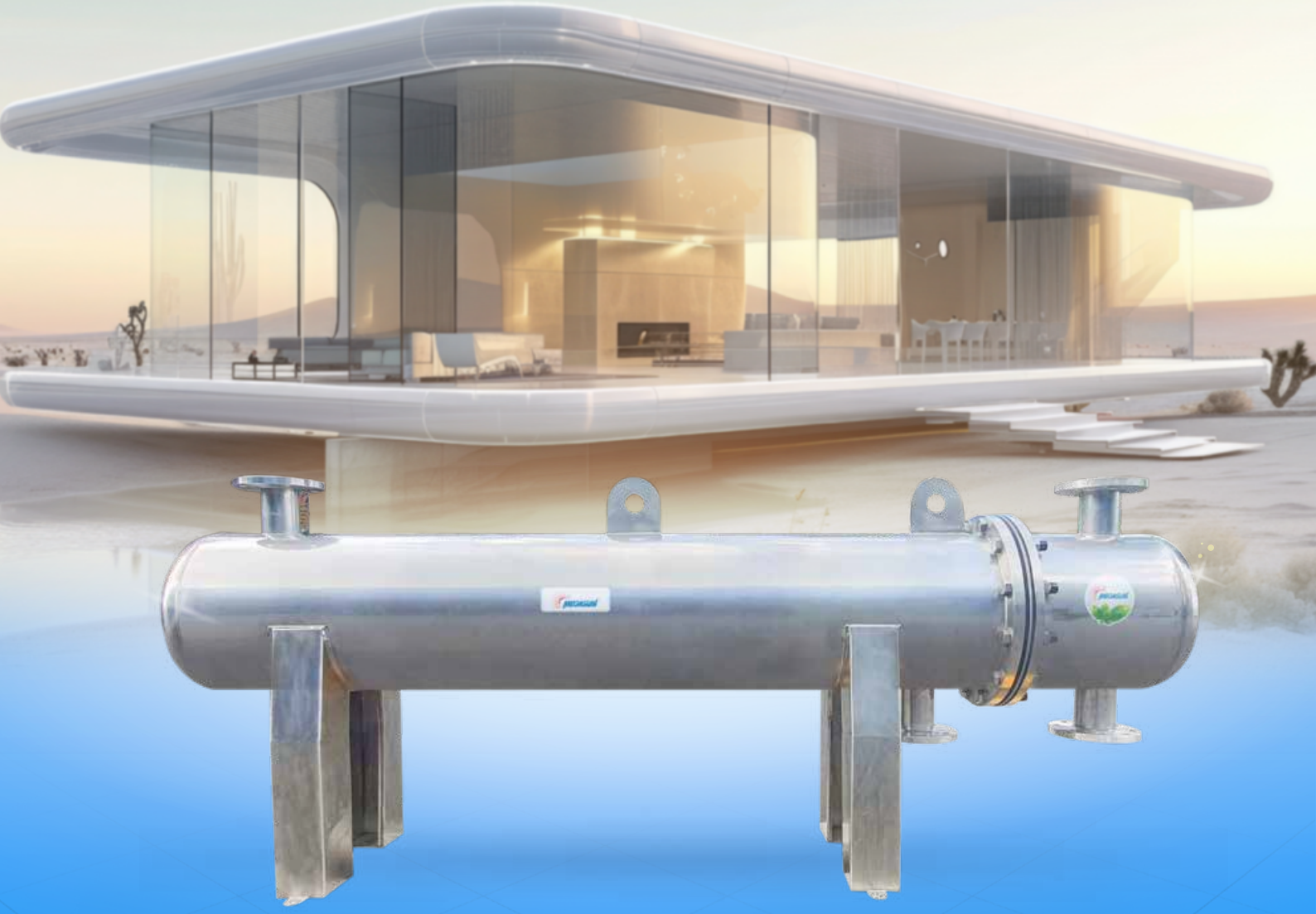

- USED IN MANY APPLICATIONS
- EASY INSTALLATION & MAINTENANCE
- HIGH HEAT TRANSFER EFFICIENCY
- SEPARATOR THE LIQUID IN GOOD

www.megasun.com.vn

INTRODUCE

The shell and tube heat exchanger of Megasun is a epuipment used to transferl heating between two fluids, separated by tubes to prevent mixing or contact between the two fluids. Through this contact and the temperature difference, the two fluids exchange heat with each other. The shell and tube heat exchanger is one of the types of heat exchangers where the cooling liquid and the heating liquid are separated by the tube bundle.

The shell and tube heat exchanger is mounted on a standard flange. The shell and tube heat exchanger is designed with high-performance tubes that are unaffected by thermal expansion, providing a high level of reliability. The tubes in the heat exchanger are made of pure copper, stainless steel 304, stainless steel 316, or titanum, making them suitable for all types of water source depending on the specific requirements of each applications: RO water, hard and soft water, saltwater, corrosive solvents, chemicals, etc. This ensures long-lasting, reliable, and hygienic performance.

The heat exchanger can be easily disassembled, making it convenient for operation, maintenance, and repair.

WHY CHOOSE MEGASUN HEAT EXCHANGERS

MEGASUN Manufacturing Co., Ltd. with over 19 years of experience in designing and manufacturing hot/cold water storage tanks and heat exchangers. By selecting the best materials and components, we ensure the highest quality products on the market with long-lasting durability, eliminating the inconvenience of equipment failures. Our products come with a standard warranty of up to 5 years, with optional extensions up to 10 years.

Wide range of heating capacity options: The heat exchangers are designed based on capacity and specific applications (water to water, steam to water, heat pump, etc.), maximizing cost savings and achieving the highest efficiency.

Heat exchangers with a variety of material options are designed for specific usage purposes, allowing the selection of materials tailored to each case to meet all usage needs.

- Heat Exchanger Tubes: Copper tubes, Stainless steel 304 tubes, Stainless steel 316 tubes, Titanium tubes
- Heat Exchanger Shell: Stainless steel 304, Stainless steel 316, Titanium
- Insulation Layer: Polyurethane, Glass wool, Rock wool
- The Cover Of Insulation Layer: Stainless steel 304, Stainless steel 316, Powder-coated steel
- Customizable Working Pressure: Options for working pressure as per requirements: from 3bar to 20bar
- Customizable Maximum Working Temperature: Options for maximum working temperature as per requirements.

Easy Maintenance: The heat exchangers feature flanged connections DN200, DN250, DN400, DN500, etc., as required, facilitating easy maintenance and cleaning.

Easy Lifting and Transportation: Megasun heat exchangers are designed for easy handling and transportation to the installation site. Large capacity heat exchangers are pre-welded with hooks for lifting and can be transported using forklifts or cranes, facilitating convenient logistics.

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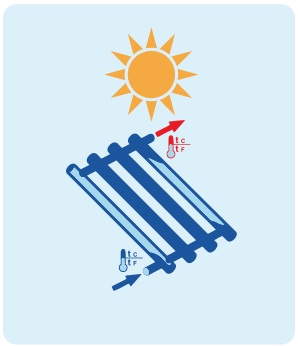
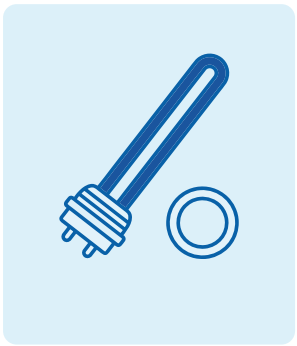
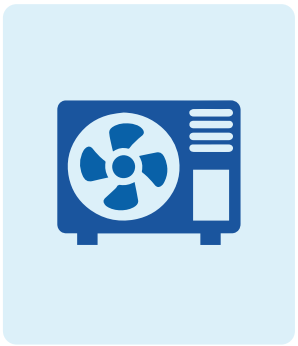
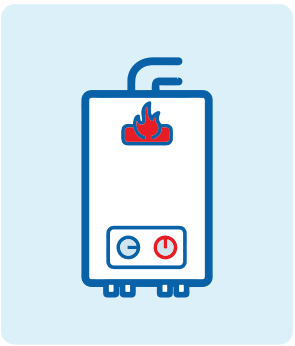
Broad Applications: Megasun heat exchangers are widely used in various fields and applications: for solar water heating systems, heat pumps, boilers, heat exchange systems for swimming pools, Onsen mineral pools, heating/cooling/RO water applications, saltwater, and corrosive solvent tanks.

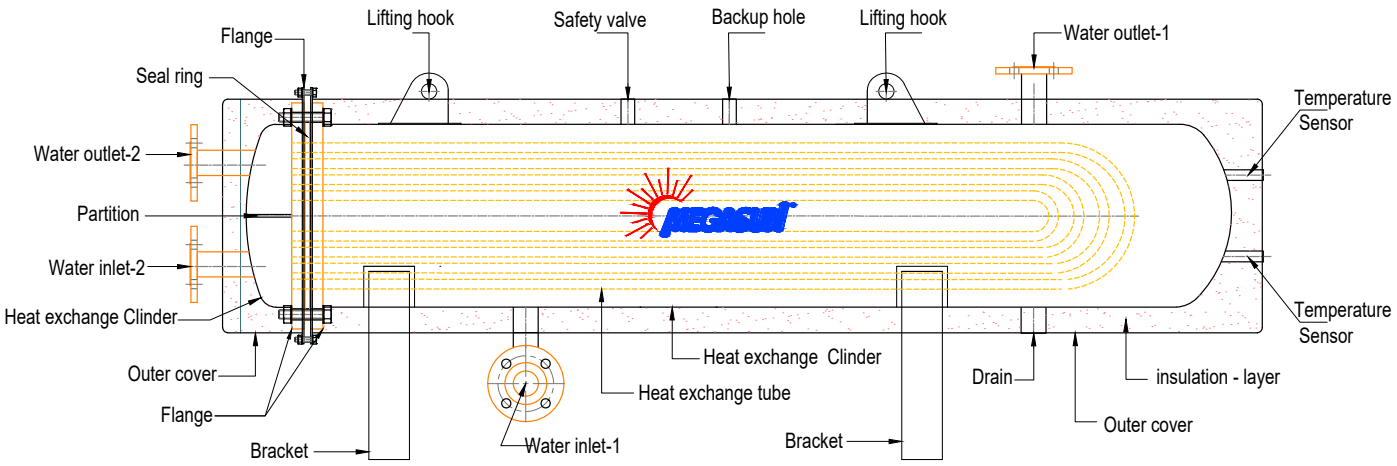





DESIGN AND MANUFACTURING STANDARDS

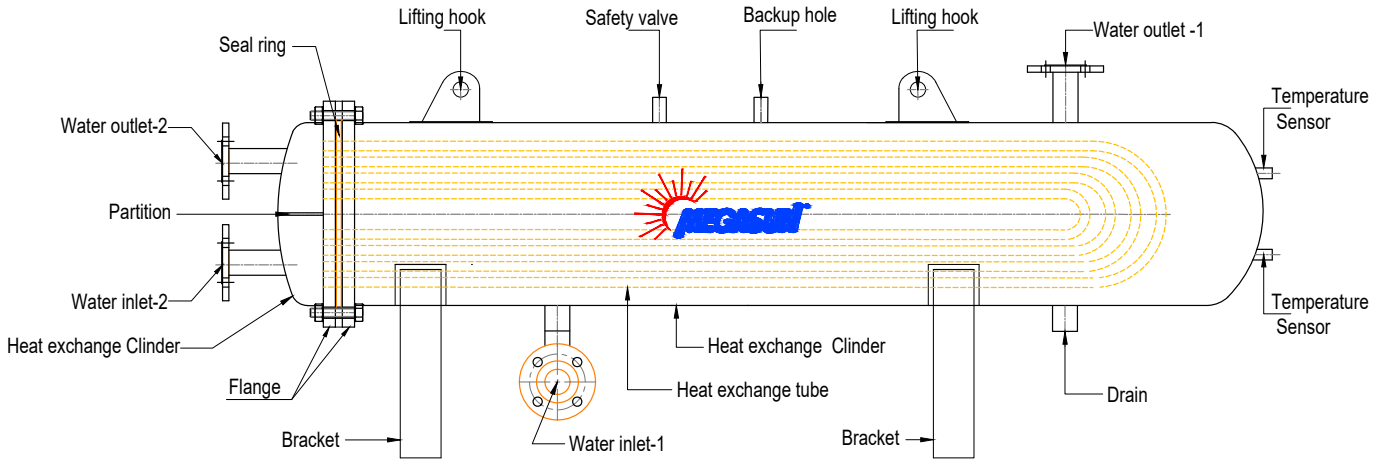
- Megasun heat exchangers are designed and manufactured according to the ISO 9001:2015 quality management process.
- Design durability and strength standards: TCVN 8366:2010, TCVN 8251:2009, QPĐT 03-71.
- Pressure safety inspection standards: QPVN 2-75, TCVN 8366:2010.
  (TCVN 8366:2010 is a standard compiled based on the AS 1210:1997 Pressure Vessels standard of Australia (AS), which is equivalent to the American standards ASME, and is available and suitable for the current conditions in Vietnam.)

STRUCTURE & BASIC COMPONENTS

Drawing Illustration & Simulation:
The Shell And Tube Heat Exchanger - Insulated Type



Drawing Illustration & Simulation:
The Shell And Tube Heat Exchanger - Non-insulated Type



The following drawing is illustrative – the actual image and structure of each heat exchanger may vary based on the specific requirements of each project.

REFERENCE IMAGES OF COMPONENTS

MAIN COMPONENTS OF THE HEAT EXCHANGER

1. HEAT EXCHANGE TUBES

Heat exchange tubes are the primary surface for heat transfer between the internal fluid and the outer fluid in the tube bundle heat exchanger. The common materials for these heat exchange tubes include Inox 304 and copper. However, for Megasun's tube bundle heat exchangers, we use higher-grade materials such as Inox 316 or Titanium to withstand various water sources.

2. HEAT EXCHANGER SHELL

The shell of the tube bundle heat exchanger is the part that holds the outer fluid and protects the heat exchange tubes. It ensures the containment and flow of the outer fluid in and out of the heat exchanger. Megasun's heat exchanger shells are usually made from corrosion-resistant materials such as Inox 304, Inox 316, or Titanium.

3. TUBE SHEET

The tube sheet is a circular metal plate that secures and fixes the heat exchange tubes through welding or grooving. This prevents the mixing of fluids inside and outside the heat exchange tubes. The material of the tube sheet should be similar to that of the heat exchange tubes and the shell to ensure corrosion resistance during use.

4. HIGH-TEMPERATURE SEALS

Seals in the tube bundle heat exchanger are used to connect the heat exchange tubes with other components such as tube sheets or baffles. These seals are typically made from high-temperature resistant and corrosion-resistant materials, ensuring water tightness under all operating conditions.

5. INSULATION LAYER (Optional)

Megasun heat exchangers use polyurethane foam insulation, sprayed using high-pressure automatic mixers, with a standard thickness of 50mm to minimize heat loss.

The density is 40-45Kg/m3, and thermal conductivity is ≤0.030W/mk.

Optional insulation materials include Glasswood or Rockwood for working temperatures above 100°C or other specific requirements, with thickness options of 75mm, 100mm, 125mm, 150mm, and 200mm.

6. PRIMARY & SECONDARY INLET/OUTLET HEADS

The primary and secondary inlet/outlet heads direct the fluid flow into and out of the heat exchange tubes. These are typically made from Inox 304, Inox 316, or Titanium and are available in various configurations (internal thread, external thread, or flange) to meet specific project/application requirements.

7. TIE RODS

Tie rods in the tube bundle heat exchanger are sturdy metal or EPDM rods that link the various structural components of the heat exchanger, ensuring stability and safety during operation.

8. INSULATION SHELL

The insulation shell of the Megasun heat exchanger is commonly made from materials such as Inox SUS304, SUS316, or galvanized steel coated with Primax Protect & GStyle E for anti-rust and sea salt corrosion resistance, ideal for marine environments.

9. ACCESSORIES (Optional)

1. Thermometer: A mechanical (or optional electronic) thermometer installed at the top of the heat exchanger to measure and display the current temperature inside the heat exchanger.

2. Pressure Gauge: A mechanical (or optional electronic) pressure gauge installed at the top of the heat exchanger to measure and display the current pressure inside the heat exchanger.

3. Safety Valve: Mandatory for all pressurized (closed type) heat exchangers. It should have a maximum discharge pressure equal to the maximum working pressure of the corresponding tank/heat exchanger. Installed at the top, with a minimum of one valve for pressures below 6 bar and a recommended minimum of two for higher pressures. Safety valves should be inspected regularly (weekly or monthly) by the user/operator. The manufacturer is not responsible for malfunctions due to the absence of, incorrect, or unmaintained safety valves.

4. Automatic Air Vent Valve: A safety device located at the top of the heat exchanger/tank to automatically vent trapped air, preventing issues and damage related to air presence in the heat exchanger/hot water tank and piping system.

SELECTION OF MAXIMUM WORKING PRESSURE

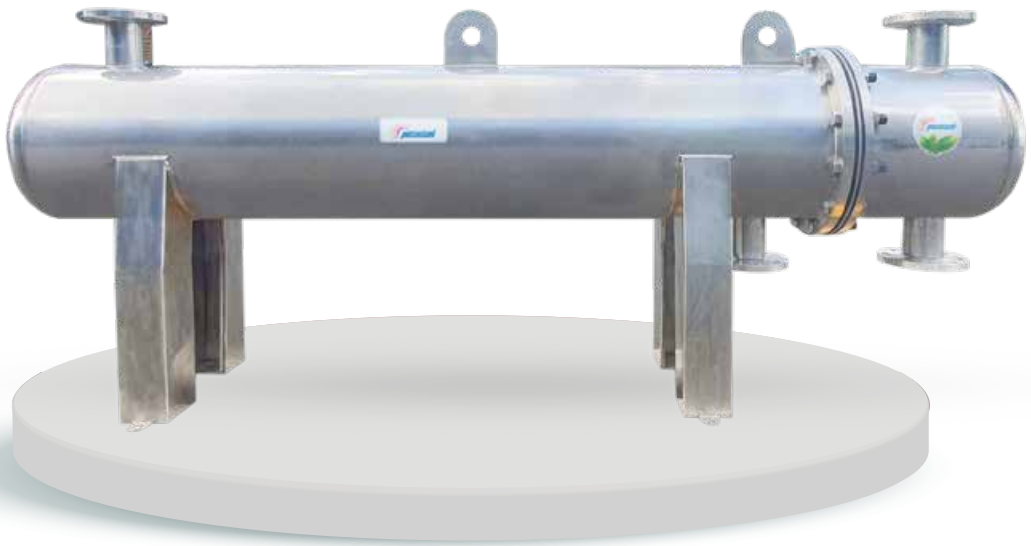
- **The Megasun heat exchanger is designed to meet the specific pressure requirements of each project and application.**
- **Standard:** Maximum working pressure / Test pressure: 6 bar / 9 bar
- **Other options:** Maximum working pressure: 3 bar, 4 bar, 5 bar, 7 bar, 8 bar, 9 bar, 10 bar, 12 bar, 15 bar

SELECTION OF MAXIMUM WORKING TEMPERATURE

- **Standard:** Maximum working temperature 95°C
- **Other options:** Maximum working temperature: 150°C, 200°C

MEGASUN HEAT EXCHANGER CODING CONVENTION

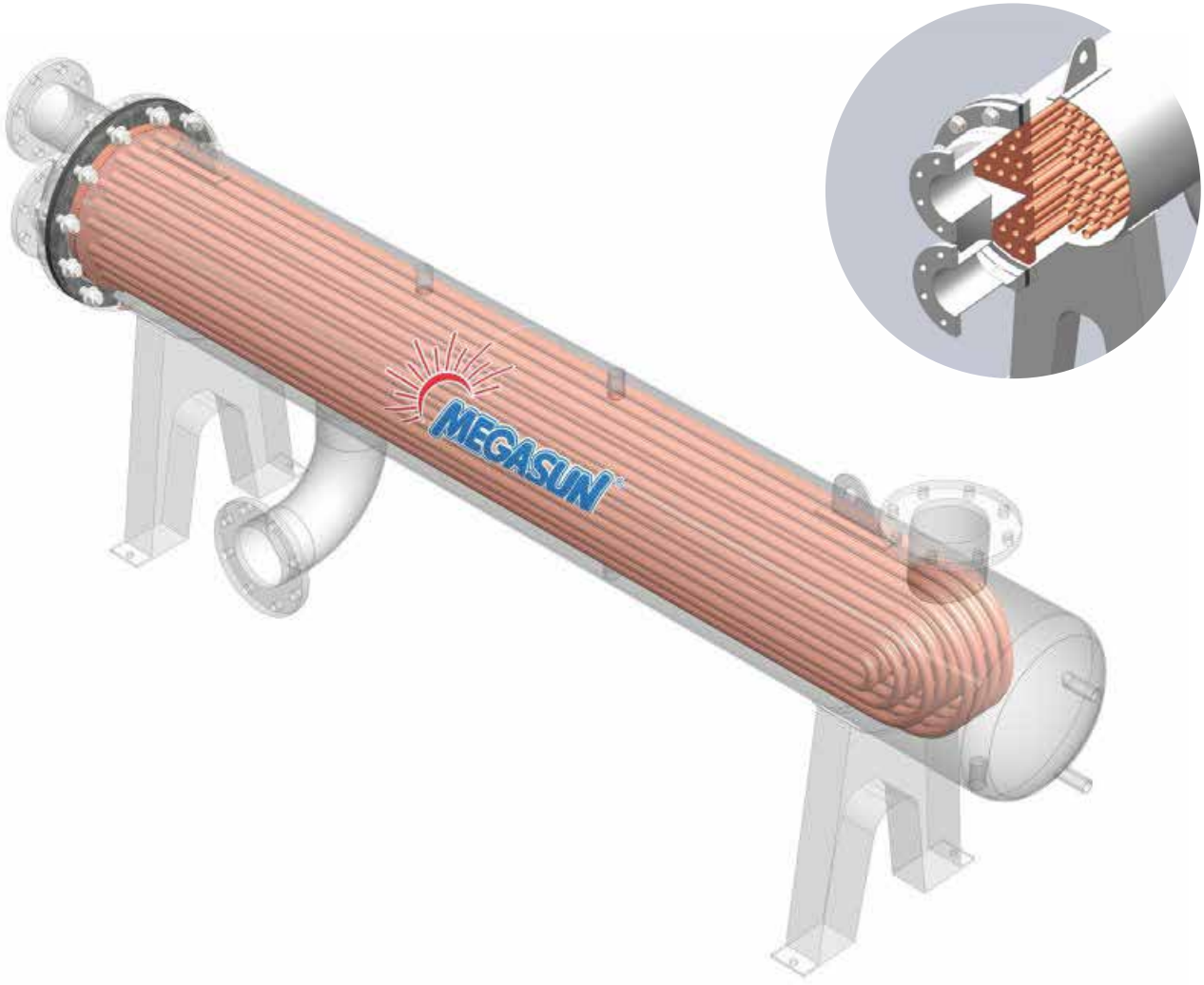
MEGASUN	HEX	XXX	U	PNXX	T-XXX	I-XXX	PU/NON	O-XXX
Brand	Heat exchanger	Heat exchanger capacity: (20KW to 500kw)	U : Tube bundle U	Maximum operating pressure (2- 10 bar)	Heat exchanger tube materials: SS304 SS316 CU TITANIUM	Shell material of the heat exchanger: SS304 SS316 CU TITANIUM	**PU:** Insulated shell **Non:** Non-insulated shell	Shell insulation materials: SS304, SS316 **GS:** Electrostatic painted steel / galvanized
For example: Megasun Heat Exchanger - Model:MEGASUN -HEX-100-U-PN10-TITANIUM-316-PU-304								
MEASUN	**HEX**	**100**	**U**	**PN10**	**TITANIUM**	**316**	**PU**	**304**
Brand	Heat exchanger	Heat exchanger capacity: 100kw	U : Tube bundle U	Maximum operating pressure: 10 bar	Heat exchanger tube materials: TITANIUM	Shell material of the heat exchanger: INOX 316	Insulated shell	Shell insulation materials: Inox 304



BASIC SPECIFICATIONS TABLE OF SOME HEAT EXCHANGERS

Heat exchanger capacity	Inner diameter	Length	Height of the stand	Primary inlet water	Primary outlet water	Secondary inlet water	Secondary outlet water	Safety valve installation holes	Air vent installation holes	Low-level sensor installation	High-level sensor installation	Bottom drain	Access door (optional)
(KW)	(mm)	(mm)	(mm)	(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	(inch)	(DN)
20	260	600	200	3/4	3/4	3/4	3/4	1/2	1/2	1/2	1/2	1/2	DN50
50	320	900	300	1	1	1	1	1/2	1/2	1/2	1/2	1/2	DN50
100	360	2100	350	1-1/2	1-1/2	1-1/2	1-1/2	1/2	1/2	1/2	1/2	3/4	DN100
150	480	2200	350	DN50	DN50	DN50	DN50	3/4	1/2	1/2	1/2	3/4	DN100
200	550	2200	350	DN50	DN50	DN50	DN50	3/4	3/4	1/2	1/2	1	DN100
300	660	2100	350	DN65	DN65	DN65	DN65	3/4	3/4	1/2	1/2	1	DN150
400	660	2600	350	DN100	DN100	DN100	DN100	3/4	3/4	1/2	1/2	1-1/2	DN150
500	900	2300	400	DN100	DN100	DN100	DN100	3/4	3/4	1/2	1/2	1-1/3	DN150

Note: Dimensions and specifications in the table are subject to change without prior notice or can be customized based on specific requirements.



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Convenient & Modern

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