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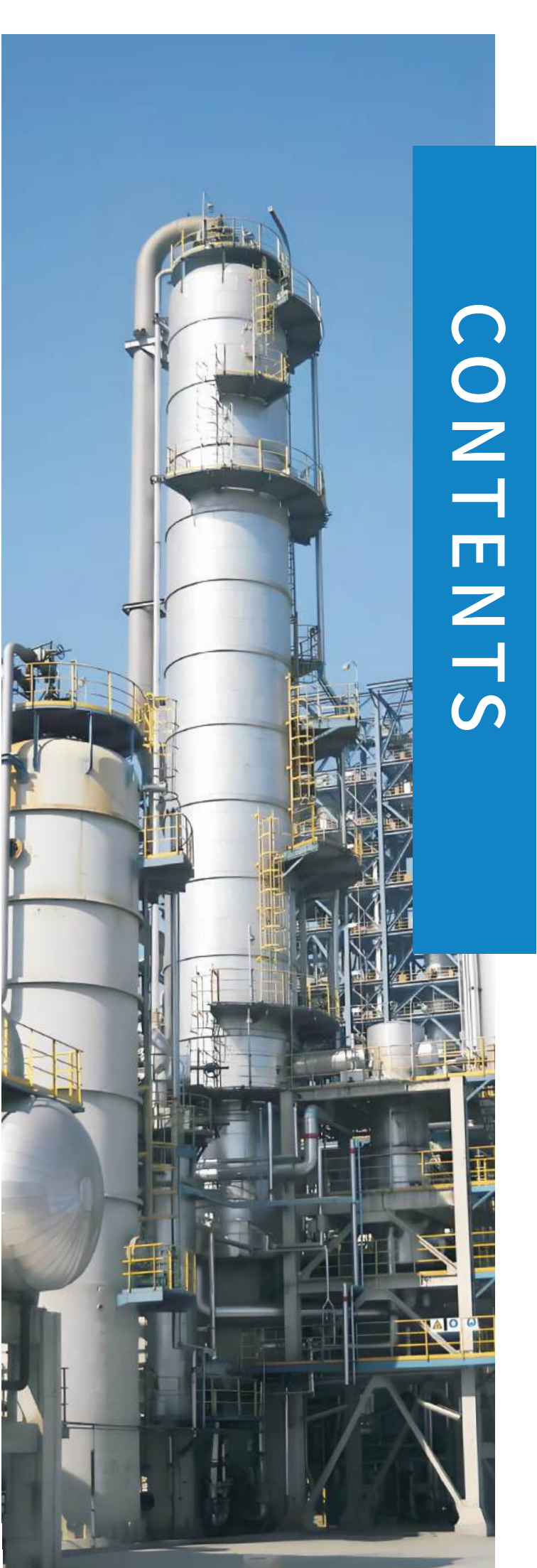
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Foshan Ever Heat Exchanger Co., Ltd



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Company Profile

Foshan Ever Heat Exchanger Co., Ltd (EVER Heat), located in Baini Town, Sanshui District, Foshan, Guangdong Province, China, specializes in the R&D, manufacturing and service of environmental protection and energy-saving equipment as well as high-efficiency heat exchange systems. Adhering to the concept of "Establishing a business with integrity and winning with quality", the company is committed to providing comprehensive energy conservation and emission reduction solutions for industry and helping achieve carbon reduction goals.

>> Core Business and Product System

Based on the manufacturing industry, the company's product line covers environmental protection equipment,heat exchange equipment, sewage cooling systems and other fields, which are widely used in environmental protection, energy(new energy), chemical industry, metallurgy, electric power, pharmaceutical, papermaking, food, printing andpapermaking, food, printing and dyeing, grain and oil, hotel and other industries:

● Heat Exchange Equipment

Main products include finned heat exchangers, detachable plate heat exchangers,shell and tube heat exchangers, plate gas-gas heat exchangers and other series. They are suitable for high-temperature, high-pressure and corrosive medium working conditions, and have excellent performance in various scenarios such as waste heat recovery in iron and steel metallurgy, LNG cold energy utilization, energy-saving recovery of combustion furnaces, and heat exchange in petrochemical processes.

● echnical Advantages and Quality Services

1.Experienced Production and Technical Team

The team includes technical team and production team, all of whom have more than ten years of experience in the selection and design of environmental protection equipment and heat exchange equipment as well as production and design experience. They can accurately solve various problems related to heat recovery and heat conversion for customers, and provide efficient energy-saving system solutions and corresponding heat exchange equipment supporting services.

2. Quality and Project Requirements

Material grades, design conditions, inspection requirements and project documentation are reviewed for each enquiry. Contact EVER Heat for the documentation applicable to your project.

Manufacturing & Product Range

Foshan Ever Heat Exchanger Co., Ltd



EVER Heat - Foshan, China

Product selection

Provide the heat duty, media, flow rates, inlet and outlet temperatures, design pressure and allowable pressure drop.

Project enquiries

sales@everheatexchanger.com

www.everheatexchanger.com



◀◀◀ Plate Heat Exchanger

01 Overview

Definition and Core Structure

The detachable plate heat exchanger is composed of multiple groups of stamped corrugated thin plates, gaskets, frames and clamping bolts. Independent flow channels are formed through alternately arranged plates to realize efficient heat exchange between cold and hot media. Its typical characteristics include:

Plate Design: The corrugated surface (such as herringbone, spherical) increases turbulence, and the heat transfer coefficient is 3-5 times higher than that of shell and tube type;

Modular Assembly: Plates are clamped by bolts, and the number can be flexibly increased or decreased to adjust the heat exchange area (the adjustment range is $\pm 30\%$);

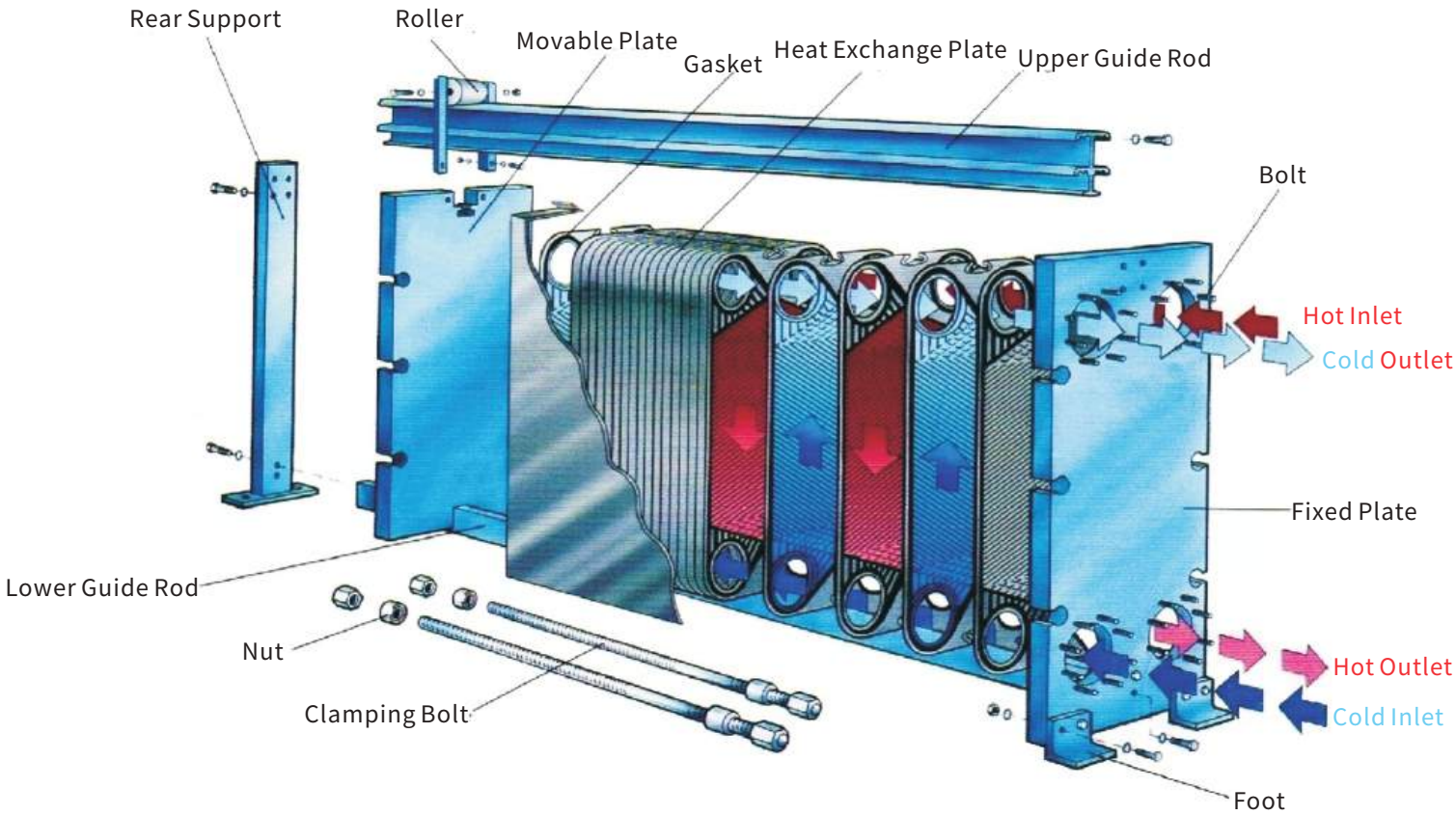
Sealing System: NBR/FKM gaskets are embedded in the edge grooves of the plates , with temperature resistance of -20°C-180°C and pressure resistance <2.5MPa.

Technical Advantages

Features	Technical Indicators/Application Value
High Heat Transfer Efficiency	The heat transfer coefficient reaches 3000-7000W/(m ² · K), which is 3 times higher than that of shell and tube type.
Easy Maintenance	The disassembly and cleaning time of a single plate is <30 minutes, and the shutdown maintenance cost is reduced by 50%.
Compact and Lightweight	The heat transfer area per unit volume reaches 200m ² /m ³ , and the weight is only 1/3 of that of shell and tube type.
Multi-Process Adaptability	Supports single-process and multi-process mixed design by adjusting the plate layout.



02 Structural Diagram of Detachable Plate Heat Exchanger



Component Materials

- Heat Exchange Plate: SUS304, SUS316L, 254SMO, Titanium, Nickel, Hastelloy
- Gasket: NBR, H-NBR, EPDM, Food-grade Gasket, FKM, Silicone Rubber
- Clamping Bolt: Carbon Steel Galvanized, Stainless Steel
- Frame: Carbon Steel, Carbon Steel with Stainless Steel Cladding
- Interface: Rubber, Carbon Steel, Stainless Steel
- Guide Rod: Carbon Steel Galvanized, Stainless Steel

03 Plate and Gasket Description

The selection of plate and gasket materials mainly depends on the corrosiveness and temperature of the cold and hot exchange media. The plate materials and application occasions of the plate heat exchangers manufactured by our company are listed in Table 1, and the gasket materials and application occasions are listed in Table 2 for users' reference and selection.



Plate Materials

Material Name	Thickness (mm)	Material Grade	Application Occasions
Stainless Steel	0.5~0.8	304,321,316,316L	Occasions with severe corrosion of acid and alkali media, not suitable for occasions with chloride ions.
Industrial Pure Titanium	0.5~0.8	Ti	Soda making, salt making, seawater, low temperature, refrigeration, occasions with chloride ion corrosion.
Nickel	0.5~0.8	Ni	Corrosion resistance, heat resistance to concentrated alkali corrosion, resistance to neutral and slightly acidic solutions.
Acid-resistant Steel	0.5~0.8	RS-2, 254SMO, HC-276	Acid industry, industries with strong corrosiveness.

Gasket Materials

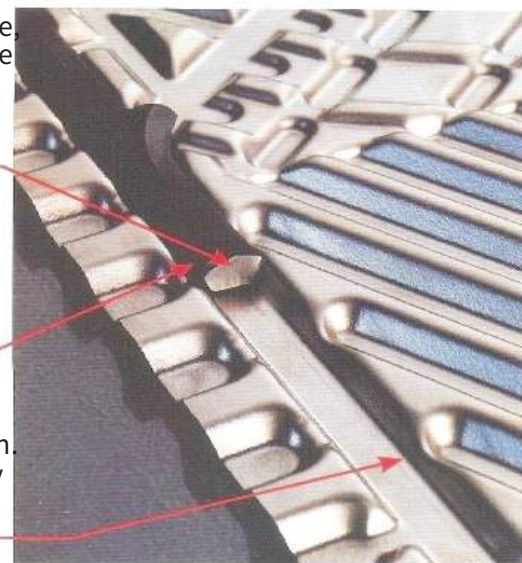
Material Name	Code	Applicable Temperature	Application Occasions
Nitrile Rubber	N	-20~110°C	Water, non-polar oils, mineral oil, lubricating oil, silicone oil, etc.
EPDM Rubber	E	-20~150°C	Water vapor, water, ozone, polar chemical media, alcohols, weak acids, weak alkalis, salt solutions, etc.
Chloroprene Rubber	C	-40~100°C	Ammonia, mineral oil, lubricants, freon, etc.
Fluororubber	F	0~180°C	Inorganic acids, alkalis, mineral oil, halocarbons, oxidants.
Silicone Rubber	Q	-40~200°C	Food industry, etc.



Roof-shaped gasket profile, uniform force, can provide users with better sealing performance, minimizing the risk of any leakage.

Adopts non-adhesive structure gasket, no pungent odor, convenient maintenance and cleaning.

Gasket protection groove design makes the gasket fit well with it, the gasket gets full support, eliminating the risk of gasket extrusion. Longer service life and more accurate assembly precision.



04 Parameters That Customers Need To Provide During Selection

Please provide the following parameters as much as possible, and we will provide you with more accurate services:

Heat Exchange Capacity: KW or Kcal/h			
Hot Medium Name	_____	Cold Medium Name	_____
Flow Rate	___ m ³ /h	Flow Rate	___ m ³ /h
Inlet Temperature	___ °C	Inlet Temperature	___ °C
Outlet Temperature	___ °C	Outlet Temperature	___ °C
Working Pressure	___ MPa	Working Pressure	___ MPa
Allowable Pressure Drop	___ MPa	Allowable Pressure Drop	___ MPa

05 Lectotype Design

Heat Load Calculation Formula: $Q = cm\Delta t = KA\Delta t_m$

Q - Heat Exchange Capacity (KW)

C - Specific Heat Capacity (KJ/kg · K)

M - Mass Flow Rate of Medium (Kg/h)

K - Heat Transfer Coefficient (W/m² · K)

A - Heat Exchange Area (m²)

Δt - Inlet and Outlet Temperature Difference (°C)

Δt_m - Log Mean Temperature Difference (°C)

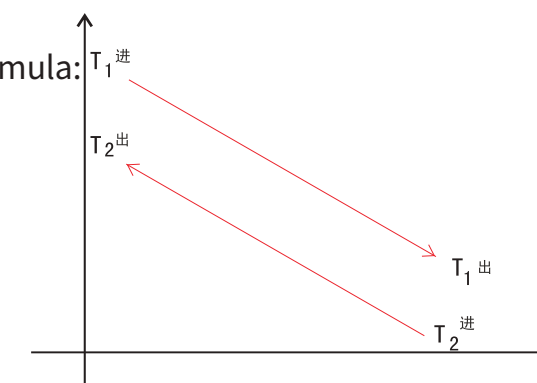
Note: m, Δt , c are parameters on the same side.

Log Mean Temperature Difference Calculation Formula:

$$\Delta t_m = \frac{\Delta t_{\max} - \Delta t_{\min}}{\ln \frac{\Delta t_{\max}}{\Delta t_{\min}}}$$

Hot Side Inlet and Outlet Temperatures: T₁→T₁'

Cold Side Inlet and Outlet Temperatures: T₂→T₂'



$\Delta t_{\max}$ is the larger value between (T₁-T₂') and (T₁'-T₂)

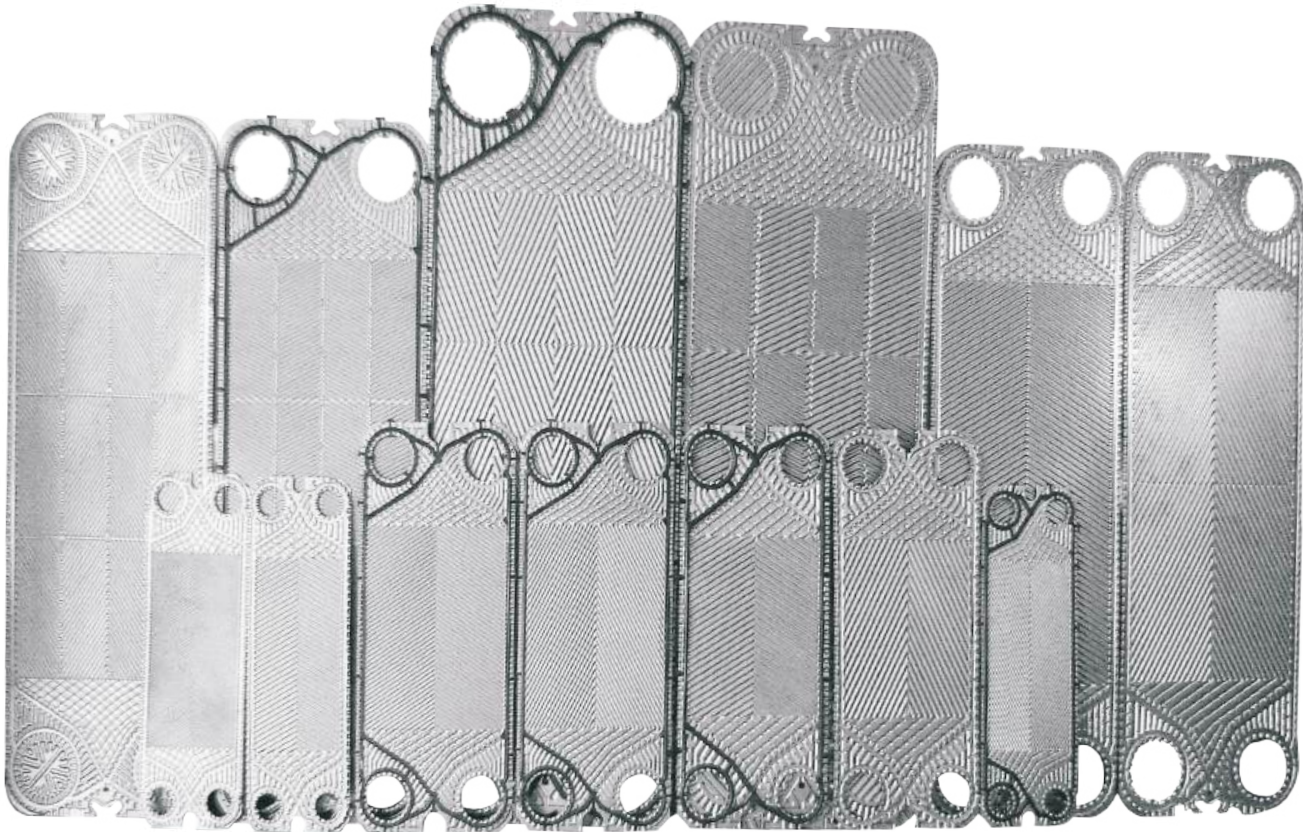
$\Delta t_{\min}$ is the smaller value between (T₁-T₂') and (T₁'-T₂)

06 Technical Parameters Of Plate Heat Exchanger

Model	Corrugation Angle	Center Distance (mm)	Overall Dimension (mm)	corrugation (mm)	caliber	clamping plate (mm)	clamping plate dimension (mm)	effective area (m ²)
BR0.08	120°	416*86	497*168	3.0	40/50 internal thread	20	525*235	0.05
BM6-0.15	126°	496*140	604*250	3.0	DN50/DN65	25	694*342	0.09
BR0.16	120°	565*155	665*248	3.6	DN40/DN50	25	710*320	0.1
BM6-1-0.19	126°	639*140	750*250	3.0	DN50/DN65	25	842*342	0.12
BM6-2-0.25	126°	886*140	1000*250	3.0	DN50/DN65	25	1104*380	0.18
BM6-2-0.25-Shallow	126°	886*140	1000*250	2	DN50/DN65	25	1104*380	0.18
BR0.3	120°	875*180	1000*303	3.6	DN65	30	1074*400	0.21
BR1001-0.33	120°	716*223	875*375	3.7	DN80-DN100	30	1126*490	0.22
BR1002-0.46	120°	1058*223	1219*375	3.7	DN80-DN100	30	1478*500	0.33
BM10-Short-0.33	57°/121°	720*223	875*375	4.0	DN80-DN100	30	1126*490	0.22
BM10-Long-0.45	57°/121	1047*223	1205*375	4.0	DN80-DN100	30	1478*500	0.33
BR1502-0.61	120°	1000*290	1219*500	3.7	DN125-DN150	35	1488*610	0.45
BR1503-0.75	120°	1280*290	1500*500	3.7	DN125-DN150	35	1769*610	0.56
BM15MD1-0.45	61°/123°	698*298	906*500	4.0	DN125-DN150	35	1153*610	0.28
BM15MD2-0.55	61°/123°	897*298	1105*500	4.0	DN125-DN150	35	1352*610	0.36
BM15MD3-0.70	61°/123°	1195*298	1403*500	4.0	DN125-DN150	35	1522*610	0.51
BM15M-0.75	61°/123°	1294*298	1502*500	4.0	DN125-DN150	35	1746*610	0.56
BM15BD-0.61	70°/130°	1012*298.5	1220*500	2.6	DN125-DN150	35	1448*610	0.43
BM15B-0.75	70°/130°	1294*298.5	1502*500	2.6	DN125-DN150	35	1746*610	0.56
BR2001-0.75	120°	970*345	1234*610	3.7	DN200	40	1576*735	0.54
BR2002-1.08	120°	1515*345	1778*610	3.7	DN200	40	2126*735	0.85
BM20MD-0.94	49°/132°	1229*353	1500*625	4.0	DN200	40	1740*756	0.75
BM20M-1.1	49°/132°	1479*353	1750*625	4.0	DN200	40	1994*756	0.85
BR20BD-0.96	70°/126.5°	1267.5*353	1540*625	2.0	DN200	40	1740*756	0.75
BR20B-1.1	70°/126.5°	1478*353	1750*625	2.0	DN200	40	1994*756	0.85
BR2501-1.06	120°	1096*436	1415*750	3.7	DN250	45	1765*870	0.75
BR2502-1.33	120°	1451*436	1772*750	3.7	DN250	45	2160*870	1

06 Technical Parameters Of Plate Heat Exchanger

BMX25D1-1.0	56°/120.5°	1013*439	1326*750	4.0	DN250	45	1706*870	0.6
BMX25D2-1.34	56°/120.5°	1476*439	1789*750	4.0	DN250	45	2160*870	1.0
BMX25M-1.69	56°/120.5°	1939*439	2252*750	4.0	DN250	50	2710*870	1.4
BMX25B-1.69	127.5	1939*439	2252*750	2.6	DN250	50	2710*870	1.4
BR3002-1.55	120°	1385*480	1772*868	3.7	DN300	55	2132*1062	1.1
BM30A-1.5	67°/127°	1085*596	1493*1000	3.4	DN300-DN350	60	1860*1129	0.9
BM30B-1.86	67°/127°	1446*596	1854*1000	3.4	DN300-DN350	65	2240*1129	1.42
BM30C-2.3	67°/127°	1842*596	2250*1000	3.4	DN300-DN350	70	2600*1129	1.86
BR35S-2.57	128	2178*578	2591*991	7.5	DN300-DN350	80	3000*1200	1.87
BR45A-2.6	60°/118°	1528*720	2060*1250	4.0	DN400-DN450	80	2440*1430	1.68
BR45B-3.2	60°/118°	1998*720	2530*1250	4.0	DN400-DN450	90	2970*1430	2.2



07 Classic Cases

Project Name: Plate Heat Exchanger Cooling Device for Printing and Dyeing Textile Sewage Station (Phase I and Phase II)

Treatment Capacity: 30000m³/d

Sewage Inlet and Outlet Temperatures: 45°C-37°C

Clean Water Inlet and Outlet Temperatures: 30°C-40°C

Product Model: BM20M-320m²



Project Name: Sewage Cooling Project for General Workshop of Shantou Chaonan Textile Printing and Dyeing Environmental Protection Comprehensive Treatment Center

Treatment Capacity: 25000m³/d

Sewage Inlet and Outlet Temperatures: 55°C-40°C

Clean Water Inlet and Outlet Temperatures: 33°C-43°C

Product Model: BM30B-500m²



Project Name: Plate Heat Exchanger Cooling Project for Sewage Station

Treatment Capacity: 4800m³/d

Sewage Inlet and Outlet Temperatures: 60°C-38°C

Clean Water Inlet and Outlet Temperatures: 32°C-42°C

Product Model: BM20M-258m²



Project Name: Phase I and Phase II Sewage Cooling Device Projects for a Textile Park in Dongguan

Treatment Capacity: 3000m³/d

Sewage Inlet and Outlet Temperatures: 60°C-28°C

Clean Water Inlet and Outlet Temperatures: 20°C-40°C

Product Model: BM15M-185m²

Treatment Capacity: 7500m³/d

Sewage Inlet and Outlet Temperatures: 60°C-28°C

Clean Water Inlet and Outlet Temperatures: 20°C-40°C

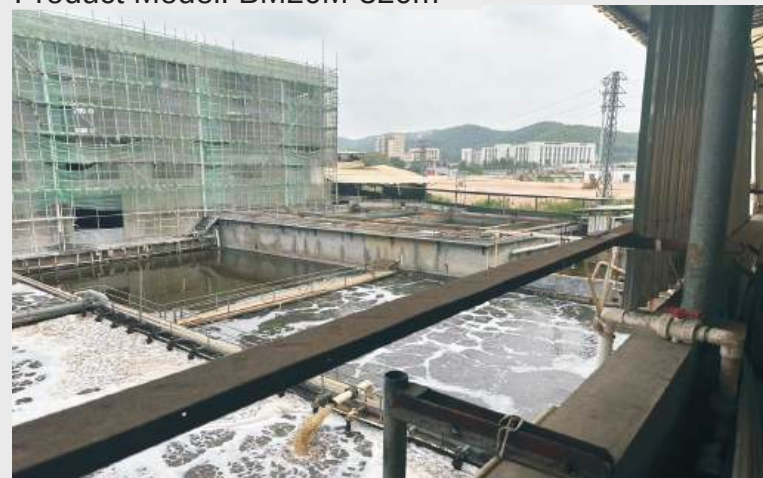
Product Model: BMX25D2-650m²



07 Classic Cases

Project Name: Phase I Sewage Cooling Device Project for a Park in Kaiping

Treatment Capacity: 3600m³/d
Sewage Inlet and Outlet Temperatures: 50°C-30°C
Clean Water Inlet and Outlet Temperatures: 25°C-40°C
Product Model: BM20M-320m²



Project Name: New Plate Heat Exchanger Project for Sewage Station

Treatment Capacity: 25000m³/d
Sewage Inlet and Outlet Temperatures: 55°C-35°C
Clean Water Inlet and Outlet Temperatures: 32°C-45°C
Product Model: BM30B-500m²



Project Name: Plate Heat Exchanger Renovation Project for Sewage Station

Treatment Capacity: 30000m³/d
Sewage Inlet and Outlet Temperatures: 55°C-35°C
River Water Inlet and Outlet Temperatures: 32°C-42°C
Product Model: BR20B-760m²



Project Name: Plate Heat Exchanger Cooling Device for Printing and Dyeing Textile Sewage Station

Treatment Capacity: 5000m³/d
Sewage Inlet and Outlet Temperatures: 55°C-35°C
Clean Water Inlet and Outlet Temperatures: 30°C-40°C
Product Model: BM20M-520m²
Technical Conditions: Sewage flow rate 5000 tons/day, temperature 55°C. It is necessary to cool the sewage to below 38°C, no new hot water is needed in summer, and new water can be produced to about 50°C for reuse in winter. Energy-saving Effect: Hot water is produced in winter, saving heating costs and reducing energy consumption, saving nearly 700,000-800,000 yuan per quarter.



<<< Shell And Tube Heat Exchanger

01 Overview

Definition and Basic Functions

The shell and tube heat exchanger (also known as tube bundle heat exchanger) is a shell-and-tube heat exchange equipment with the tube wall of the tube bundle enclosed in the shell as the heat transfer surface. It realizes temperature regulation or energy recovery through heat exchange between fluids in the tube side and shell side. Its typical applications include chemical reactor cooling, steam condensation in power systems and cold-heat exchange in heating, ventilation and air conditioning.

Core Structure and Heat Transfer Principle

1. Basic Composition:

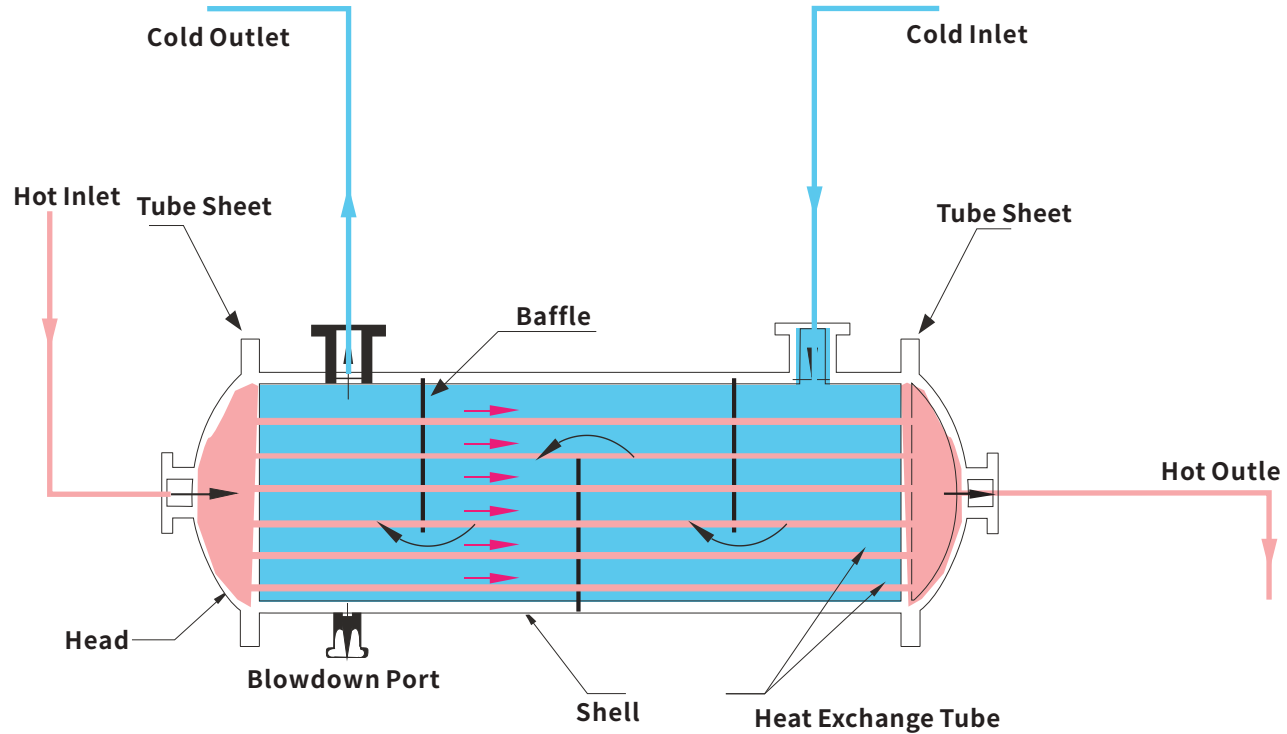
- **Shell:** Cylindrical closed space, bearing the pressure of shell side fluid (such as water, steam or corrosive medium).
- **Tube Bundle:** Consists of hundreds of heat transfer tubes (e.g., 316L ,stainless,steel, titanium alloy), fixed on tube sheets at both ends to form the tube-side fluid channel.
- **Baffle:** Transversely installed in the shell, guiding the fluid to scour the tube bundle multiple times to enhance turbulence and improve heat transfer efficiency.
- **Channel Box:** Distributes tube side fluid and supports multi-pass design (single tube pass to multi-tube pass).

2. Heat Transfer Mechanism:

- **Shell-and-Tube Heat Exchange:** Cold and hot fluids transfer heat indirectly through the tube wall to avoid direct contact of media.
- **Countercurrent Enhancement:** Increasing the temperature difference through counter current or cross flow of cold and hot fluids, the heat transfer efficiency is 20%-30% higher than that of concurrent flow.
- **Turbulence Promotion:** Baffles (such as segmental, spiral) break the fluid boundary layer, and the shell side heat transfer coefficient is increased by 40%-60%.



02 Structural Diagram Of Shell And Tube Heat Exchanger



03 Fixed Tube Sheet Heat Exchanger

Structural Features: The tube bundle is rigidly connected to the shell, with simple structure and low cost; a compensation ring is required to relieve thermal stress (temperature difference <50°C).

Suitable Scenarios: Chemical low-pressure steam condensation, air conditioning systems.



04 Floating Head Heat Exchanger

Structural Features: One end of the tube bundle can float freely, eliminating thermal expansion stress, suitable for high-pressure scenarios with temperature difference >50°C.

Suitable Scenarios: Refinery crude oil heating, high-temperature reactors.



05 U-tube Heat Exchanger

Structural Features: The heat transfer tube is bent in U shape to eliminate thermal stress, pressure resistance <10Mpa, and the tube side is difficult to clean.

Suitable Scenarios: Nuclear power steam generators, high-pressure boilers.



06 Technical Parameters Of Shell And Tube Heat Exchanger

Basic Parameter Table (Heat Exchange Tube Outer Diameter 20mm)									
Nominal Diameter (mm)	Number of Tube Passes	Number of Tubes	Heat Exchange Tube Length (mm)	Number of Central Rows of Tubes (m²)	Calculated Heat Exchange Area (m²) Heat Exchange Tube Length (mm)				
					1500	2000	3000	4500	6000
159	1	15	5	0.0030	1.4	1.9	2.8	/	/
219	1	33	7	0.0066	3.1	4.1	6.2	/	/
273	1	65	9	0.0131	6.1	8.2	12.3	18.4	24.5
	2	56	8	0.0056	5.3	7.0	10.6	15.8	21.1
325	1	99	11	0.0199	9.3	12.4	18.7	28.0	37.3
	2	88	10	0.0088	8.3	11.1	16.6	24.9	33.2
	4	68	11	0.0034	6.4	8.5	12.8	19.2	25.6
400	1	174	14	0.0350	16.4	21.9	32.8	49.2	65.6
	2	164	15	0.0165	15.5	20.6	30.9	46.4	61.8
	4	146	14	0.0073	13.8	18.3	27.5	41.3	55.0
450	1	237	17	0.0477	22.3	29.8	44.7	67.0	89.3
	2	220	16	0.0221	20.7	27.6	41.5	62.2	82.9
	4	200	16	0.0101	18.8	25.1	37.7	56.5	75.4
500	1	275	19	0.0553	/	34.6	51.8	77.8	103.7
	2	256	18	0.0257	/	32.2	48.3	72.4	96.5
	4	222	18	0.0112	/	27.9	41.8	62.8	83.7

Basic Parameter Table (Heat Exchange Tube Outer Diameter 25mm)									
Nominal Diameter (mm)	Number of Tube Passes	Number of Tubes	Heat Exchange Tube Length (mm)	Number of Central Rows of Tubes (m²)	Calculated Heat Exchange Area (m²) Heat Exchange Tube Length (mm)				
					1500	2000	3000	4500	6000
159	1	11	3	0.0038	1.3	1.7	2.6	/	/
219	1	25	5	0.0087	2.9	3.9	5.6	/	/
273	1	38	6	0.0132	4.5	6.0	9.0	13.4	17.9
	2	32	7	0.0055	3.8	5.0	7.5	11.3	15.1
325	1	57	9	0.0197	6.7	9.0	13.4	20.1	26.9
	2	56	9	0.0097	6.6	8.8	13.2	19.8	26.4
	4	40	9	0.0035	4.7	6.3	9.4	14.1	18.8
400	1	98	12	0.0339	11.5	15.4	23.1	34.6	46.2
	2	94	11	0.0163	11.1	14.8	22.1	33.2	44.3
	4	76	11	0.0066	9.0	11.9	17.9	26.9	35.8
450	1	135	13	0.0468	15.9	21.2	31.8	47.7	63.6
	2	126	12	0.0218	14.8	19.8	29.7	44.5	59.4
	4	106	13	0.0092	12.5	16.7	25.0	37.5	50.0
500	1	174	14	0.0603	/	27.3	41.0	61.5	82.0
	2	164	15	0.0284	/	25.8	38.6	58.0	77.3
	4	144	15	0.0125	/	22.6	33.9	50.9	67.9

<<< Air Heat Exchanger

01 Overview

Definition and Basic Functions

The air heat exchanger is a surface-type heat exchange equipment that indirectly heats or cools air through cold and hot media. Its core function is to realize efficient heat transfer between air and other media (such as water, steam, oil, etc.). According to different heat transfer media, it can be subdivided into water-type, oil-type, gas-liquid type, electric heating type and composite type.

02 Working Principle

1. Heat Transfer Mechanism:

- The heat source fluid (such as high-temperature water, steam or high-temperature gas) and cold air conduct heat conduction through heat-conducting materials (metal walls, fins, etc.), and heat is transferred from the high-temperature side to the low-temperature side.
- Convective heat transfer generated by fluid flow further accelerates the heat exchange efficiency. For example, air forms turbulence when flowing through the fin tube bundle to enhance heat exchange.

2. Medium Isolation Design:

Cold and hot media usually flow in independent channels to avoid direct contact. For example, high-temperature flue gas and air exchange heat through the metal channel wall.



03 Wound Heat Exchanger

The metal strip (aluminum, copper or stainless steel) is tightly wrapped on the base tube (carbon steel/stainless steel/titanium alloy) through mechanical winding process, and the fins and heat is transferred from the high-temperature side to the low-temperature side.

Features

1. High Heat Transfer Efficiency: Spiral wound fins induce fluid turbulence, and the heat transfer coefficient is 50%-200% higher than that of smooth tubes; **High Pressure and High Temperature Resistance:** The integrated design of base tube and fins, pressure resistance $\leq 1.6\text{MPa}$, temperature resistance range $-50^{\circ}\text{C}\sim 300^{\circ}\text{C}$.

2. High Pressure and High Temperature Resistance: The integrated design of base tube and fins, pressure resistance $\leq 1.6\text{MPa}$, temperature resistance range $-50^{\circ}\text{C}\sim 300^{\circ}\text{C}$.

● **High Temperature and High Pressure Scenarios:** Petroleum chemical reactor cooling, power plant boiler steam system, medium is steam or high-temperature heat transfer oil;

● **Compact Space Requirements:** Industrial workshop heating, cold chain cold storage, heat transfer area per unit volume reaches $100\text{-}170\text{ m}^2/\text{m}^3$.



04 Rolling Plate Heat Exchanger

Continuous fins are extruded on the surface of metal base tube (copper/aluminum) by rolling process. The fins and base tube are integrally formed of the same material, no welding seams, and the fin density is adjustable.

Features

1. High Mechanical Strength: No welding points, pressure resistance up to 2.5MPa , excellent anti-vibration performance;

2. Lightweight Design: Mainly made of aluminum/copper materials, the weight is 20%-30% lower than that of wound type.

● **Clean Scenarios:** Dairy production line sterilization, pharmaceutical purified water cooling, need to avoid medium pollution;

● **Frequent Start-stop Working Conditions:** Heat pump units, waste heat recovery systems, adapt to frequent temperature fluctuations.



05 Cascade Heat Exchanger

Independent fins (aluminum/steel) are connected in series on the base tube (copper/stainless steel) through mechanical tube insertion process, and the fins are fixed by expansion or riveting to form a parallel arranged

Features

- 1.Modular Design: Fins can be replaced individually, low maintenance cost;
- 2.Low Flow Resistance Characteristics: Parallel flow channels reduce pressure drop, suitable for large flow scenarios;
- 3.Ash Deposition Resistance: Fin spacing adjustable (2-6mm), suitable for dust gas heat exchange.
- High Dust Environment: Cement plant flue gas waste heat recovery, boiler air preheating, need regular soot
- Large Flow Heat Exchange: Central air conditioning fresh air unit, data center liquid cooling system, flow rate ≤3m/s;
- Low Temperature Anti-freezing Scenarios: Heating radiators in northern regions, adapting to -30°C low temperature environment.



06 High Frequency Welding/Laser Heat Exchanger

The fin (steel/stainless steel) and base tube (carbon steel/alloy steel) are instantly welded at the contact surface by melting metal with high-frequency current to form a high-strength metallurgical bond, and the weld penetration rate >90%.

Features

- 1.Resistance to Extreme Working Conditions: Pressure resistance ≤4.0MPa, maximum temperature resistance up to 600°C (alloy steel base tube);
- 2.Leakage-proof Design: Full weld structure without gaps, suitable for flammable and explosive media;
- 3.Long Service Life: Strong thermal fatigue resistance, continuous service cycle >10 years.
- High Temperature and High Pressure: Steel mill gas heat exchange, nuclear power steam generator, medium contains particles or corrosive gas;
- Explosion-proof Requirements: Chemical plant explosion-proof workshop, oil and gas field wellhead heat exchange, need to comply with ATEX explosion-proof certification;
- Heavy Pollution Media: Coking plant raw gas cooling, ship exhaust gas treatment, adapting to sulfide/nitrogen oxide corrosion.

Translation

Type	Advantage Scenarios	Limitations	Typical Industry Applications
Wound Fin Type	High heat transfer efficiency, corrosion resistance	Pressure ≤ 1.6 MPa	Chemical, Power, Food
Rolled Fin Type	Lightweight, high cleanliness	Low corrosiveness of medium required	Refrigeration, Automotive, Pharmaceutical
Inserted Fin Type	Easy maintenance, dust resistance	Not suitable for high-pressure steam	HVAC, Building Materials, Environmental Protection
High-Frequency Welded Fin Type	Resistant to extreme temperatures /pressures, explosion-proof	High manufacturing cost	Petroleum, Nuclear Power, Shipbuilding



<<< Gas Heat Exchanger

01 Overview

As the core equipment in the field of industrial heat recovery, the gas-gas heat exchanger has significant application value in the following scenarios:

1. Multi-industry Coverage

Traditional Industry: Waste heat recovery of process gas in grain and oil drying, papermaking, petrochemical, electric power, iron and steel, etc.

New Energy Field: Heat energy reuse of drying tail gas in lithium battery production process

Thermal Equipment: Deep waste heat recovery of flue gas from boilers/incinerators/heaters (the exhaust gas temperature can be reduced to below 80°C)

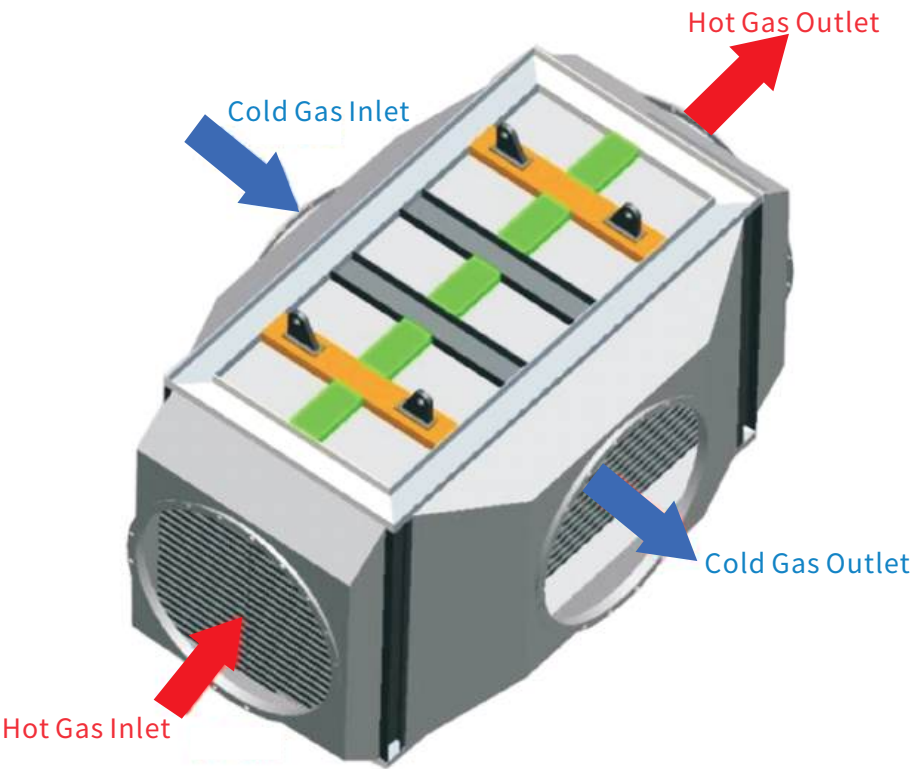
2. Technical Adaptability

Adopting modular structure design, it has the following advantages:

- Temperature resistance range -50°C to 800°C, adapting to dusty and corrosive gas environments.
- Pressure loss control <500Pa, heat exchange efficiency up to 75%-92%
- Supporting customized configuration of air volume range from 10-500,000Nm³/h.

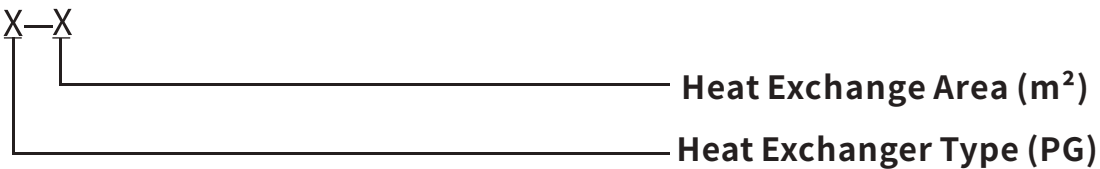


02 Structural Diagram



Equipment Model

• Model Designation Method



• Materials of Heat Exchanger Components

Component	Material
Plate	304, 316L, 310S
Connecting Plate and Frame	Q235B, 304, 316L, 310S
Header	Q235B, 304, 316L, 310S
Interface	Q235B, 304, 316L, 310S

03 Characteristics

1、High Heat Exchange Efficiency

Thin plate thickness, good heat transfer performance, heat exchange efficiency 20-50% higher than that of tube type.

2、Small Floor Space and Light Weight

The plate heat exchanger has a compact structure, large heat exchange area per unit volume, and the equipment floor space is 20-30% smaller than that of shell and tube heat exchanger; the plate thickness is only 0.8mm-1.2mm, and the weight is nearly half lighter than that of tube heat exchanger under the same heat exchange area and same material.

3、Large Processing Capacity

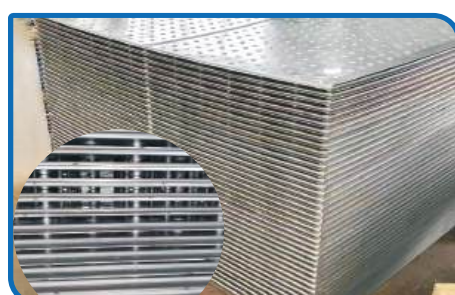
The cold and hot fluids of the gas-gas heat exchanger are parallel to the heat exchange surface in the channel, and there is no bypass flow. The processing capacity of the equipment can range from tens of cubic meters to thousands of cubic meters.

4、Easy to Clean and Not Easy to Block

The gap between the plates is large, the contact points are few, and the heat exchange surface is smooth, which is conducive to the passage of fluids containing solid particles. Impurities are not easy to precipitate, and the interior can be washed online with clean water, with less residual foreign matter and convenient and fast cleaning.

5、Reliable Quality:

Advanced welding equipment and advanced technology are adopted for plate welding. Resistance welding is used for welding between plates, and manual welding is used to ensure that the weld seam is not easy to crack. At the same time, various testing equipment and technologies are used to ensure the quality of the equipment to the greatest extent.



04 Waste Heat Utilization and Treatment of Drying Waste Gas in Grain and Oil Industry

In the drying of soybeans in the grain and oil industry, the gas-gas heat exchanger significantly improves the drying efficiency and recycling. The following are its core functions and technical implementation methods:

I、Heat Energy Recovery and Waste Heat Utilization

1、Waste Gas Heat Recovery

The high-temperature waste gas (containing heat energy and moisture) generated during the drying process is introduced into the hot side of the gas-gas heat exchanger, and the heat is transferred to the low-temperature fresh air through the metal plate.

2、Preheating Fresh Air

The fresh air on the cold side absorbs the waste gas heat and heats up, then enters the drying system as the drying medium, reducing external energy consumption.

II、Precise Temperature Control and Quality Assurance

1、Temperature Regulation Function

By adjusting the waste gas flow rate and heat exchange efficiency, the temperature of the drying hot air can be precisely controlled, avoiding protein denaturation or nutrient loss of soybeans due to overheating.

2、Uniform Drying

The design of the heat exchanger ensures stable hot air temperature, making the soybeans heated uniformly, reducing local scorching or moisture residue problems.

III、Energy Saving and Environmental Protection Advantages

1.Reducing Energy Consumption

Compared with the traditional direct heating method, the gas-gas heat exchanger can recover 30%-50% of the waste heat, reducing fuel or electricity consumption.

2.Emission Reduction and Environmental Protection

The temperature of the waste gas is reduced after heat exchange, reducing heat energy waste and greenhouse gas emissions caused by direct emission.

IV、Application Example Selection Parameters

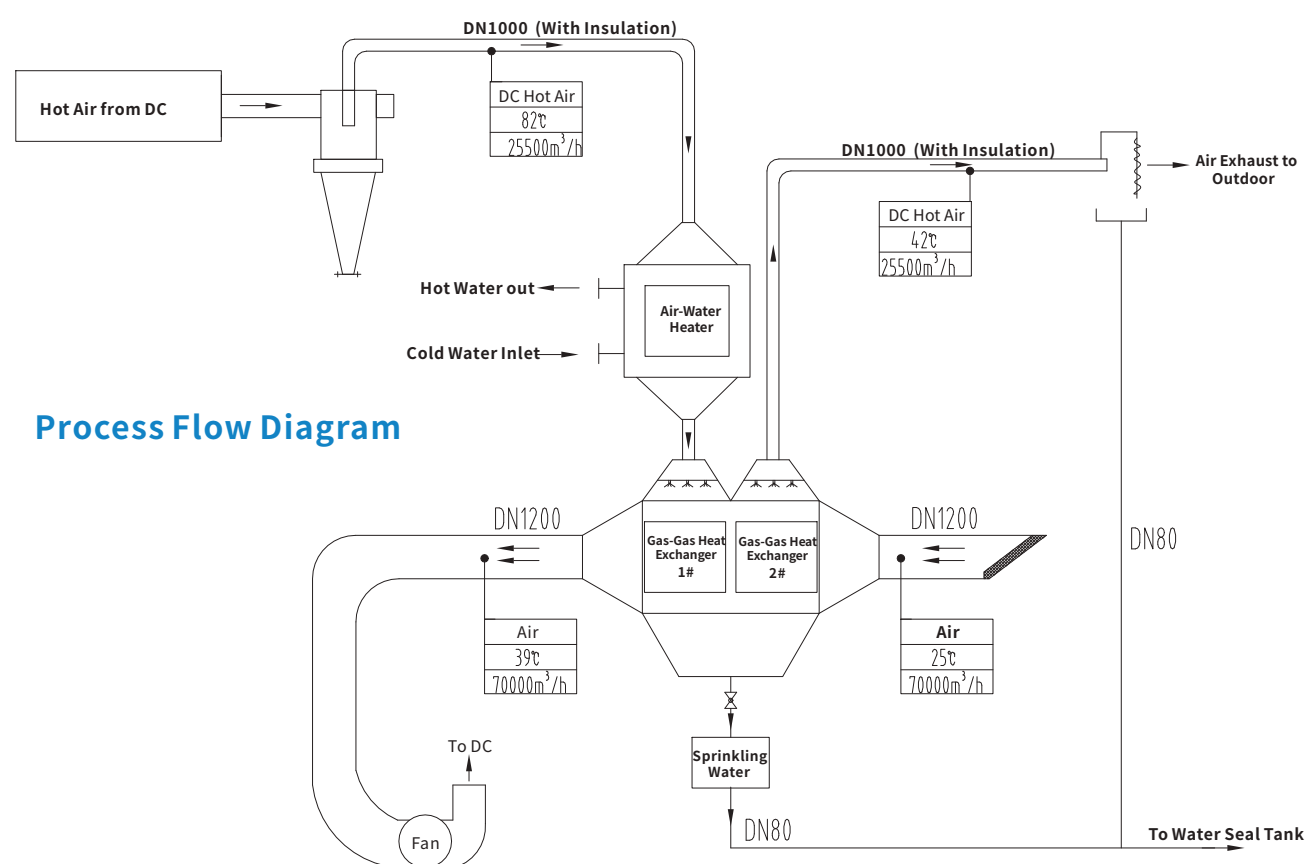
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05



Process Flow Diagram

● Field Photos



06 Application Of Lithium Battery Waste Heat Recovery Project

In the lithium battery waste heat recovery project, the gas-gas heat exchanger significantly improves energy utilization efficiency and reduces production costs by recovering waste heat from the production process. The following are its specific applications and technical characteristics:

I、Application Scenarios and Technical Principles

1.Waste Heat Recovery in Coating and Drying Links

A large amount of high-temperature waste gas (containing NMP solvent vapor) is generated in the coating and drying processes of lithium battery production. The gas-gas heat exchanger transfers the waste heat of the waste gas to fresh air through metal plates, and the preheated air can be recycled for production links (such as drying ovens), reducing heating energy consumption.

2.Closed-loop System Construction

After the waste gas is cooled by the heat exchanger, the waste heat is recovered to the production process, forming an energy closed loop and realizing the reuse of heat energy.

II、Technical Advantages and Core Functions

1.High-efficiency Heat Exchange Performance

The gas-gas heat exchanger adopts a compact plate structure, with short fluid path and large contact area, heat exchange efficiency up to 60%-80%, which can quickly transfer heat and distribute it evenly.

2.Corrosion Resistance and Stability

High-temperature resistant alloy materials (such as stainless steel or titanium alloy) are selected, which can withstand corrosive gases (such as NMP vapor) and high-temperature impact (200-300°C) in lithium battery production.

3.Modular Adaptability

Modules can be flexibly combined according to the production line scale, adapting to various equipment such as coating machines and ovens, and supporting continuous production requirements.

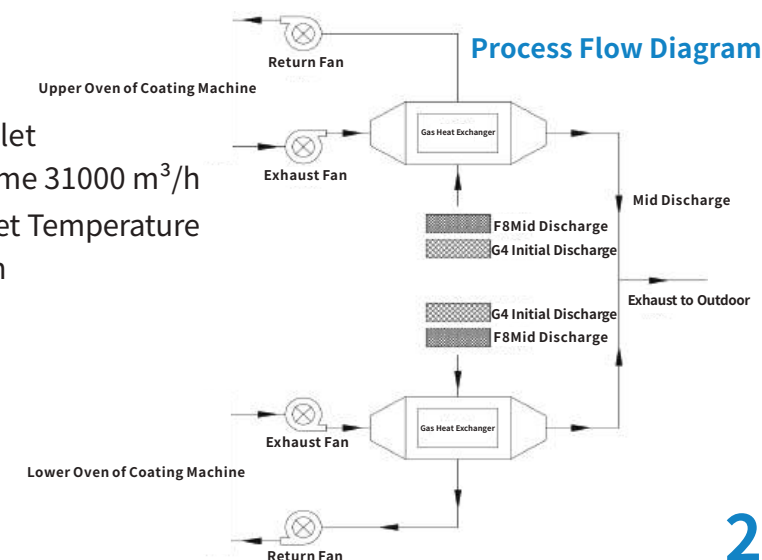
● Selection Parameters

Hot Air: Inlet Temperature 150°C to Outlet

Temperature 90°C, Processing Air Volume 31000 m³/h

Cold Air: Inlet Temperature 25°C to Outlet Temperature 95°C, Processing Air Volume 23400 m³/h

● Selection Model: PG-415B



Volumetric Heat Exchanger

01 Overview

I、Definition and Core Functions

The volumetric heat exchanger is a device that transfers heat through cold and hot fluids alternately flowing through the surface of the regenerator (filler) or through solid partition walls, with dual functions of heat exchange and heat storage. Its core feature is to use a large water storage volume to achieve heat energy buffering, which is suitable for scenarios requiring stable hot water supply or intermittent heat load. According to different heat transfer methods, it can be divided into three types: :mixed type, regenerative type and partition type (surface type).

II、Structural Composition

- **Tank Body:** Cylindrical or rectangular design, the material is mostly stainless steel, carbon steel or composite material, and the inner surface is often sprayed with anti-corrosion alloy layer to improve corrosion resistance.
- **Heat Exchange Tube Bundle:** Core heat transfer component, adopting U-tube, floating coil or corrugated tube design, the material includes stainless steel, titanium alloy, etc.
- **Auxiliary Devices:** Including steam/cold and hot water inlets and outlets, safety valves (anti-overpressure), temperature sensors and blowdown ports, etc.



02 Equipment Parameters

Main Technical Parameters of Volumetric Heat Exchanger (Heat Source: 0.4MPa Saturated Steam or 90℃ Hot Water, Cold Side Outlet Water Temperature 60℃)							
Model	Heat Load		Volume	Nominal Diameter	Overall Dimensions	Design Pressure	Net Weight of Equipment
	10 ⁴ kcal/h						
	Steam	Hot Water	m ³	mm	mm	MPa	kg
JLF2-1.0-1000	20	10	1.0	1000	Ø1000X1860	0.6/1.0/1.6	320/405/530
JLF3-1.0-1000	30	15					345/430/555
JLF4-1.0-1000	40	20					370/455/580
JLF4-1.5-1100	40	20	1.5	1100	Ø1100X2180	0.6/1.0/1.6	425/535/695
JLF5-1.5-1100	50	25					450/560/720
JLF6-1.5-1100	40	30					757/585/745
JLF4-2.0-1200	40	20	2.0	1200	Ø1200X2300	0.6/1.0/1.6	530/665/935
JLF6-2.0-1200	60	30					580/710/985
JLF8-2.0-1200	80	40					630/760/1035
	60	30	3.0	1400	Ø1400X2685	0.6/1.0/1.6	655/830/1170
8-3.0-1400	80	40					705/880/1220
JLF10-3.0-1400	100	50					750/930/1270
JLF6-4.0-1500	60	30	4.0	1500	Ø1500X2940	0.6/1.0/1.6	770/1190/1610
JLF8-4.0-1500	80	40					820/1240/1660
JLF10-4.0-1500	100	50					870/1290/1710
JLF12-4.0-1500	120	60					920/1340/1760
	60	30	5.0	1600	Ø1600X3270	0.6/1.0/1.6	965/1335/1825
	80	40					1015/1385/1875
600	100	50					1065/1435/1925
JLF12-5.0-1600	120	60					1115/1485/1975
JLF6-6.0-1800	60	30	6.0	1800	Ø1800X3270	0.6/1.0/1.6	1025/1425/2515
JLF8-6.0-1800	80	40					1075/1475/2565
JLF10-6.0-1800	100	50					1125/1525/2615
JLF12-6.0-1800	120	60					1175/1575/2665
JLF8-8.0-2000	80	40	8.0	2000	Ø2000X3370	0.6/1.0/1.6	1370/2020/2670
JLF12-8.0-2000	120	60					1470/2120/2770
JLF16-8.0-2000	160	80					1570/2220/2870
JLF20-8.0-2000	200	100					1670/2320/2970
JLF8-10.0-2200	80	40	10.0	2200	Ø2200X4260	0.6/1.0/1.6	1520/2640/3395
JLF12-10.0-2200	120	60					1620/2740/3495
JLF16-10.0-2200	160	80					1720/2840/3595
JLF20-10.0-2200	200	100					1820/2940/3695

<<< Storage Tank

01 Overview

I. Definition and Core Characteristics

Non-standard Attribute: Non-standard storage tanks refer to storage containers that are not designed according to national standard stereotypes, and need to be individually designed and manufactured according to specific requirements (such as medium characteristics, capacity, pressure, etc.).

Parameter Variability: Its material, wall thickness, function, volume, etc. are all variables, and customized design is required to meet actual working conditions.

II. Application Fields

Industry Coverage: Widely used in petroleum, chemical, grain and oil, food, pharmaceutical, fire protection and other industries, used for storing liquids (such as chemicals, edible oil) or gases (such as liquefied natural gas).

Special Scenario Adaptation: Suitable for high-temperature/low-temperature media, corrosive substances and process environments requiring closed-loop circulation.

III. Material and Structural Characteristics

The main materials include stainless steel (such as 304/316L), carbon steel (such as Q235), polyethylene, FRP, etc., which are selected according to the corrosiveness, temperature and hygiene requirements of the medium.

Auxiliary components (manholes, ladders, etc.) mostly adopt ordinary carbon steel to reduce costs.

IV. Customized Design

Customization Flexibility: Supports the adjustment of parameters such as volume (from several cubic meters to tens of thousands of cubic meters), working pressure (atmospheric pressure to high pressure), and interface position, and can integrate functions such as heating/cooling jackets and stirring.



<<< Tower

01 Overview

I. Definition and Core Characteristics

The tower is a vertical non-standard equipment used for mass transfer and heat transfer between gas-liquid or liquid-liquid phases. It realizes chemical unit operations such as separation, absorption and rectification of mixtures through internal components (such as trays, packing). Its height to diameter ratio is large, and the main body is composed of a cylinder, a head and a support, which needs to be customized according to process requirements.

II. Application Fields and Industry Adaptation

1. Chemical and Petroleum Industry

- **Distillation:** Separating hydrocarbon components in crude oil;
- **Absorption:** Removing harmful gases (such as SO₂) from industrial waste gas;
- **Extraction:** Recovering solvents or purifying chemicals.

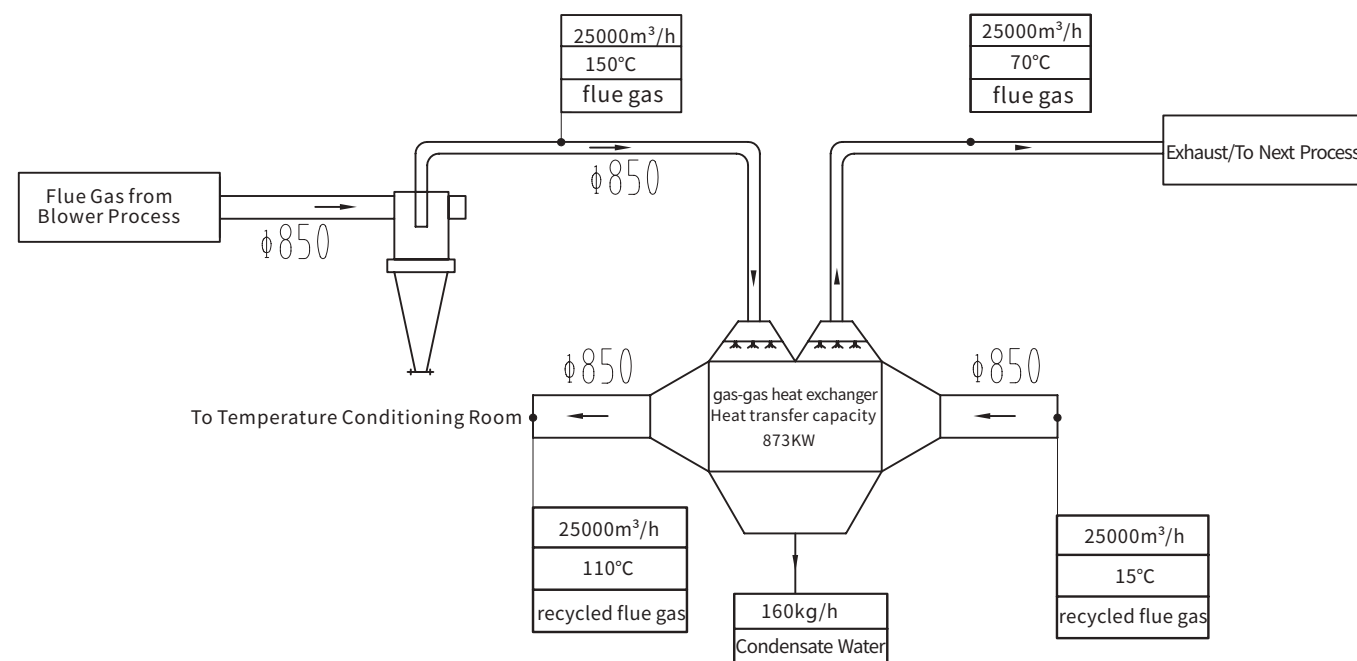
2. Environmental Protection and Energy Industry

Used in gas cooling, wastewater treatment and waste heat recovery systems to reduce energy consumption and pollution emissions.

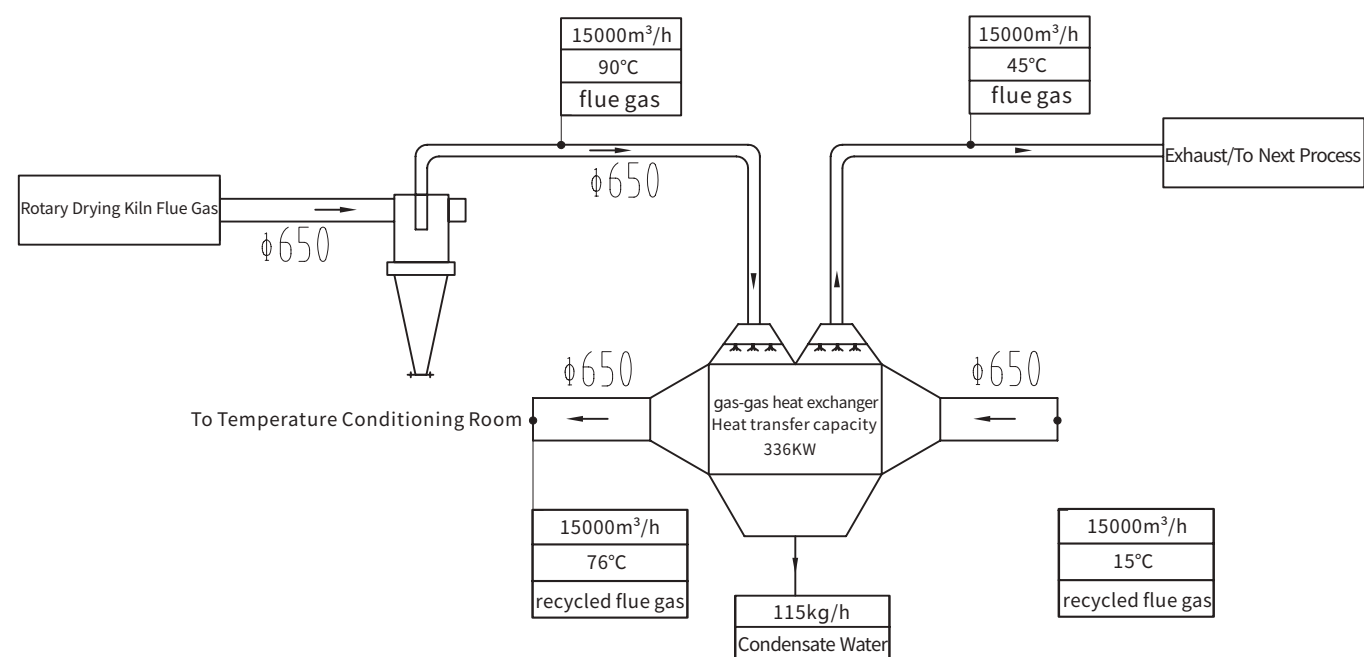


Industrial Flue Gas Waste Heat Recovery and Utilization

Waste Heat Recovery and Utilization of Blower Process - Plate Type Gas-Gas Heat Exchanger



Waste Heat Recovery and Utilization of Rotary Kiln Process - Plate Type Gas-Gas Heat Exchanger



Cooperating Enterprises

