

## 板式换热器 Plate Heat Exchangers



广州市酷浦斯机械有限公司

GUANGZHOU COOLPLUS MACHINERY CO.,LTD.



广州市酷浦斯机械有限公司 (COOLPLUS), 是以热交换系统设计、换热设备制造和换热元件研发的企业; 是国内最专业的液压传动、发动机、发电机组、汽车、工程机械等机械冷却器制造商。多年来, 酷浦斯 COOLPLUS 将自己的专业技术发展到新的应用领域, 使其业务不断向农业机械、压缩机、船舶、风力发电、分布式能源、火车机车及电力、化工、冶金、食品、暖通等热交换领域市场拓展和延伸。酷浦斯已由简单的为客户提供产品发展到能以客户为中心提供热交换系统全套解决方案, 正被全球范围内越来越多的厂商肯定和认可, 成为其在中国甚至全球热系统首选供应商。

## INTRODUCTION

Guangzhou coolplus machinery co.ltd was founded in 2009, is the leader of China in the field of mechanical cooling such as engine, automobile and construction machinery, we provide worldwide cooling solutions

Coolplus headquarter located in Guangzhou, have achieved the certificate of ISO/TS 16949:2009. factory of cool-plus has 3 workshops including radiator line, condenser line& Plastic tank line.We offer a variety of more than 3000 models yearly. In order to manufacture such a variety of products, our factories operate some of the world's largest, most sophisticated, modern machinery.

Having successfully broken into the industry of cooling system, coolplus has grown into an organization that specializes in producing passenger vehicles, trucks, tractors and heavy duty equipment.

Coolplus proudly sells to more than 30 Countries worldwide. regions in Europe,Middle East,South America and Africa,and is maintaining wide business cooperation with several international famous companies.

We extend our deepest gratitude to the supporters of Coolplus and ask for your continued love and encouragement.

## OUR VISION

To lead in the profession of Automobile&Industrail thermal system,We strive to achieve these by constant research, invention and innovation of quality and affordable world-class products to our customers.





广州市酷浦斯机械有限公司 (COOLPLUS), 专注板式换热器的设计与制造, 共研发 180 多种板型, 成功满足了各种换热介质和所有工业领域热交换系统需求, 我们的板型设计和制造工艺始终处于国际领先地位。低流阻高性能的板式换热器, 不仅成本低, 而且性能可靠、经久耐用。因为我们有强大的采购能力和先进的制造工艺, 因此, 始终能确保市场价格稳定, 从而使客户的利益得到最大的保证。

Guangzhou coolplus machinery Co.,Ltd.(COOLPLUS) focuses on designing and manufacturing Plate Heat Exchangers. We have developed over 180 types of plates which can perfectly meet the demands of various heat transfer media and all industrial heat transfer systems. Our plate design and manufacturing technology are always on the top rank in the world. Our plate heat exchangers have high performance and low flow resistance low operational cost and durable service life. By strong sourcing ability and advanced manufacture technology we keep stable market prices to ensure the best profits for the clients.

## 应用领域

## Application area



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- 汽车及工程机械**  
应用领域: 汽缸冷却液、散热器冷却液
- 电力行业 石油化工行业**  
应用领域: 各种工业冷却液、各种工业加热液、各种工业蒸汽冷却液、各种工业蒸汽加热液
- 暖通/制冷行业**  
应用领域: 楼宇空调系统、工业冷却系统、工业加热系统、工业蒸汽系统、工业热水系统
- 船舶行业**  
应用领域: 船用冷却液、船用加热液、船用蒸汽系统
- 冶金行业**  
应用领域: 各种工业冷却液、各种工业加热液、各种工业蒸汽冷却液、各种工业蒸汽加热液
- 乳制品行业**  
应用领域: 用于各种工业冷却液、各种工业加热液、各种工业蒸汽冷却液、各种工业蒸汽加热液



## 板式换热器种类

### Plate heat exchanger type

我公司提供的板式换热器有：可拆板式、全焊板式、钎焊板式和热交换系统中的板式换热器。

We provide such as Gasket PHEs , Full welded plate heat exchangers, Brazed heat exchangers(BHE), Plate heat exchanger in heat exchange system , etc.



可拆板式换热器  
Gasket PHEs

特点：传热效果好，如换热量增加有可加装板片的灵活性，方便维修和清洗。

Features: good heat transfer effect, easy to add plates for better heat transfer capacity, easy maintenance and cleaning.



全焊板式换热器  
Fully Welded Plate Heat Exchanger

特点：承压能力大，最大设计压力3.0MPa,耐温性高，最高设计温度可达250℃。

Features: good pressure bearing capacity, max design pressure of 3.0MPa, high temperature resistance, max design temperature up to 250 C .



热交换系统中的板式换热器  
Plate heat exchanger in heat exchange system

特点：高效节能，运行成本低。

Features: high efficiency, energy saving and low running costs



钎焊板式换热器  
Brazing Plate Heat Exchangers

特点：结构紧凑，易安装，换热系数更高，最大设计压力4.5MPa，最高设计温度可达225℃。

Features: compact structure, easy to install, high heat transfer coefficient, max design pressure of 4.5MPa, max design temperature up to 225 C .

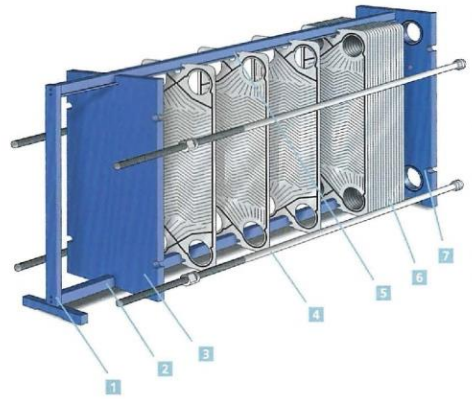


## 可拆板式换热器的结构与密封

### Structure and sealing of gasketed plate heat exchangers

可拆板式换热器由以下 7 个部分组成。

1. 支架 与固定夹板紧定，使板片组位置固定。
2. 导杆 将板片组、活动夹板定位和导向。
3. 活动夹板 压紧板片组。
4. 紧固螺栓 紧定固定夹板和活动夹板，使板片组在中间压紧，直到密封。
5. 上导柱 支承板片组及活动夹板，使其滑动导向。
6. 板片组 由多件板片和嵌入的密封圈组成。
7. 固定夹板 紧定在上导柱和导杆中，活动夹板通过紧固螺栓将板片组夹紧，从而成形一台板式换热器。



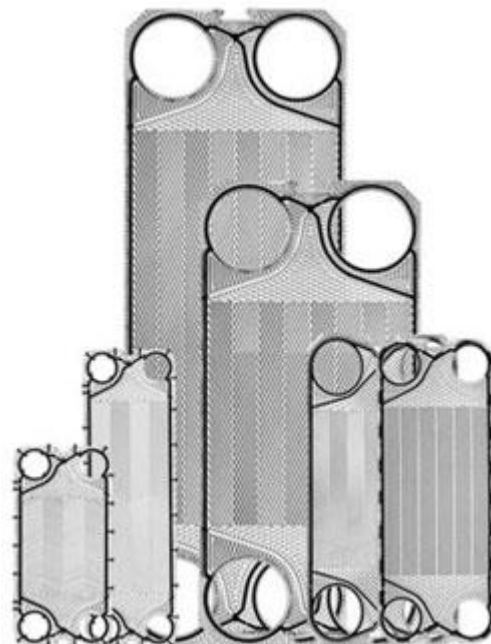
A gasketed plate heat exchanger is made up of the following seven major components:

1. **Support**, counterpart to the fixed plate and bears the plate heat exchanger on the right side.
2. **Guiding gar**, on which, depending on the model, the plate pack and the pressure plate located on or are guide by.
3. **Pressure plate clamp the plate pack.**
4. **Tightening bolts**, pressure the fixed plate and pressure plate together with the plate pack suspended in between , thus sealing it off.
5. **Carring beam**, on which, depending on the model , the plate pack and the pressure plate are suspended or guided.
6. **Plate pack**, made up of profiled plates with intermediate gaskets.
7. **Fixed plate**, fixed on the carrying beam and guiding bar, pressure plate clamp the plates by pressure plate.

嵌入板片的密封圈使换热介质流向不同的通道，并确保换热介质密封而不渗透；板片上的沟槽形状及尺寸，决定了换热介质流动形式及热交换效率，板片的数量决定了系统热交换量的大小；板片和密封圈的材料由换热介质的物性决定；板片角孔通径的大小由换热介质标准规定的入口流速决定。

The gasket is embedded in the plate, and the heat transfer medium flow is guided to various accesses, and ensure the sealing of heat transfer medium.

Groove shape and size of the plates decide the flow form of heat transfer medium and heat transfer efficiency; the number of plates decides the system heat transfer capacity; the physical property of heat transfer medium decides the plate material and gasket material; inlet flow rate (according to rules of Heat Transfer Medium Standard )decides the corner pore diameter.





## 满足各种换热工况的板片流道设计

### Plate designs for various heat transfer demands

#### 板片波纹尺寸及形式

#### Plate groove size and forms

按波纹分为浅波纹和深波纹，浅波纹应用在单侧大温差、或两侧小温差的工况，浅波纹的传热系数高。深波纹板片可用于换热介质粘度高的工况，且介质流动阻力相对小。

There are shallow corrugated plate and deep corrugated plate.

Shallow corrugated plate has a high heat transfer coefficient. It can be used for large temperature difference on one side condition and small temperature differences on both sides condition.

Deep corrugated plate can be used for high heat transfer medium viscosity and small flow resistance conditions.

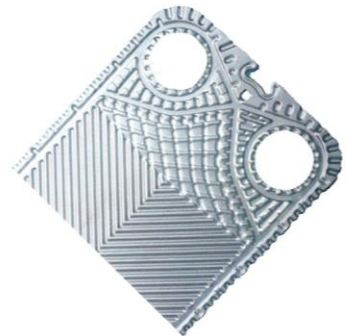
#### 人字波纹

#### Herringbone Corrugated

波纹有大夹角和小夹角之分，可以组装为大夹角通道、大小夹角混装通道、小夹角通道；波纹也有水平分布和垂直分布之分，可以组装为波纹水平分布通道、波纹垂直分布通道、波纹水平分布和垂直分布混装通道。

There are large angle corrugated plate and small angle corrugated plate. They can be assembled into big angled channel, mixed angled channel and small angled channel.

There are horizontal distributed corrugation plate and vertical distributed corrugation plate. They can be assembled into horizontal distributed corrugation channel, vertical distributed corrugation channel, and mixed distributed corrugation channel.



#### 球形波纹

#### Spherical Corrugated

用于介质中含有大颗粒的工况，可解决介质在板片流道中被堵塞的问题。

It can be used for conditions having large particles in medium. It can solve the blocking problems in medium channels



#### 平直波纹

#### Flat Corrugated

用于介质中含有纤维类的工况，方便介质在板片流道间畅动。

It can be used for conditions having fibers in medium and the medium can easily flow through plate channels.



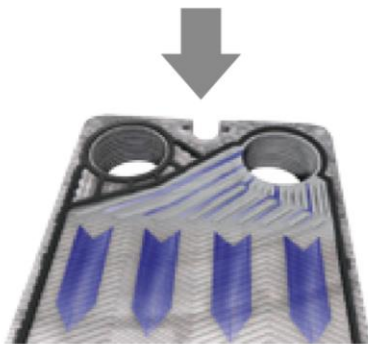
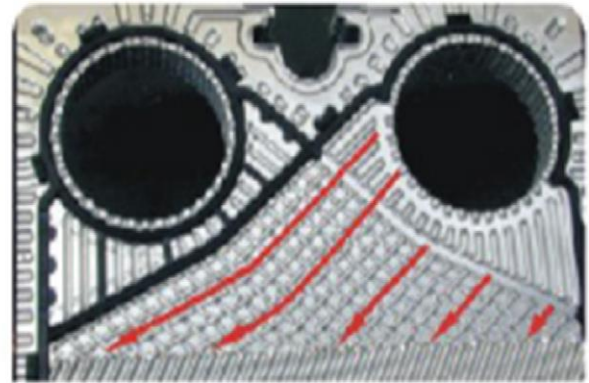


## 确保板间流速均匀的入口分流区设计

Special design of inlet diverging area can ensure an even flow rate in plates.



传统板片设计  
Conventional  
Plate Design



酷浦斯板片设计  
CoolPlus Plate Design



我公司出色的板片，让流体的流动达到最佳效果，均匀的流体分布让板片面积充分利用，同时也大幅度提升了换热效率。

Our plates can achieve the best fluid flowing effect, an even fluid distribution, a full use of plate area, and also greatly improve the heat transfer efficiency.

板片特有的分流区即使最宽的板片也能保证流量均匀分布。

Special diffluent area on the plate makes the flow evenly distribute (even if on the widest plate)

## 常用板片材质及应用

Commonly used plate material and application

板片材料 Material	适合流体 Fluid
不锈钢 Stainless steel	淡水、动植物油、矿物油 Fresh water, animal or plant oil, mineral oil
工业纯钛及钛钯合金 Commercially pure titanium and Ti-Pd alloy	海水、氯化物溶液 Sea water, chloride fluid
镍板 Nickel sheet	苛性钠溶液 Caustic soda
哈氏合金 Hastelloy	硫酸、盐酸和磷酸 Sulfuric acid, hydrochloric acid and phosphoric acid

除上述外，我公司还可以根据特殊的工况选择适合的板片材质。

In addition to the above, our company undertakes tailor-made plate material for special fluids.



## 安装在板片上的密封圈由工作温度等决定其固定形式

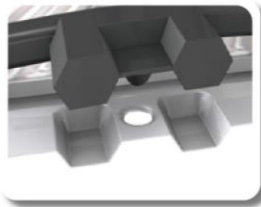
The fixing form of gasket is decided by the working temperature and other.

众所周知，板片密封圈的材料必须能耐换热介质腐蚀和满足工作温度要求，但这远远不够，优质的密封圈材料还要有耐候性和回弹性好。只有满足这些条件的密封圈，才能保证板式换热器运行可靠和使用寿命长久。

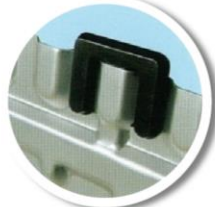
根据换热介质工作温度不同，板片上的密封圈有粘接式和嵌入式（免粘接型）。当工作压力  $\leq 1.6$  MPa 时，采用嵌入式密封圈，便于安装和拆卸，可多次拆装，且使用寿命相对长；当工作压力  $> 1.6$  MPa 时，采用粘接式密封圈，耐压性好，运行安全可靠。

It's all known that gasket must meet the demand of heat transfer medium corrosion resistant and the demand of working temperature. However, that's not enough. Quality gasket shall also have good weather resistance and good resilience. Only gasket meet these demands, the PHE can have a good performance and durable service life

There are two kinds of gasket for various working temperatures of heat transfer medium: adhesive gasket and embedded gasket (free adhesive type). When the working pressure  $\leq 1.6$ MPa, we choose embedded gasket. It's easy installation and removal, for repeated disassembly and assembly, and has a relatively longer service life; when the operating pressure  $> 1.6$ MPa, we choose the adhesive gasket. It has a good pressure resistance and reliable safe performance.



嵌入式的突缘插入型  
Flange-insertion embedded type



嵌入式的边挂型  
Edge-hang embedded type



渗漏检测槽口  
Leakage testing groove



粘接型  
Adhesive type

## 常用密封圈材质及应用

Commonly used gasket material and application

密封圈材料 Gasket material	温度℃ Temperature	适合流体 Suitable for fluid
丁腈橡胶 NBR	-10~120	浓碱溶液、盐酸、液态氨、氨水、水、动植物油、矿物油、普通汽油、醇类、变压器油 Strong alkali solution, hydrochloric acid, liquid ammonia, ammonia, water, animal and plant oil, mineral oil, regular gasoline, alcohol, transformer oil
氢化丁腈橡胶 HNBR	-15~140	同上，以及燃料油、润滑油、芳香族溶剂 Same as above, as well as the fuel oil, lubricating oil, aromatic solvents
三元乙丙橡胶 EPDM	-20~130	浓碱溶液、盐酸和硫酸醇、醇类、酯类、醚类、水及水蒸汽 Strong alkali solution, hydrochloric acid and sulfuric acid alcohol, alcohols, esters, ethers, water and steam
食品级三元乙丙 Food grade EPDM	-35~145	饮料、纯净水、蔗汁、其他食品类流体 Beverages, pure water, sugarcane juice, and other food fluid
氟橡胶 FKM	-10~280	油类、溶剂、浓酸、强氧化性液体、过热水和蒸汽 Oils, solvents, strong acid, strong oxidizing liquid, hot water and steam





## 专利衬套

Patent : TEFLON line

目前，嵌入夹板角孔上的衬套有两种：橡胶衬套和金属衬套。但是橡胶衬套耐久性差，而嵌入金属衬套的一端需要焊接，奥氏体不锈钢衬套焊接处铬化物易析出，也无法固溶处理；钛合金衬套很难焊接，焊接处材料性能变性。这两种金属衬套的可靠性同样不好，也很快失效。为此，橡胶衬套和金属衬套都需要频繁更换。

为了解决衬套频繁更换的麻烦，上海朗基设计了聚四氟乙烯衬套，并将这一设计已申请专利保护。聚四氟乙烯衬套耐腐蚀、耐磨损，永久不用更换，得到了广泛的应用。

There are two kinds of lining which can be embedded into the splint corner pores: rubber lining and metal lining. Rubber lining has a poor durability and one end of the embedded metal lining needs to be welded; Austenite stainless steel lining, chrominide compounds can easily precipitate from the welds, nor solid treatment can be carried out; Titanium alloy lining is hard to weld and material properties of the welds may change. Both the metal linings have poor reliability and short service lives. Therefore, rubber lining and metal linings need frequent replacement.

In order to solve the trouble of frequent lining replacement, we designed TEFLON lining and the design has been applied for patent protection. TEFLON lining has strong corrosion resistance and abrasion, no replacement is required. It's been widely used.



## 全套解决方案

Complete solutions



产品温度计、压力表、管道系统全套设计。

Product thermometer, pressure gauge, pipeline system complete set design



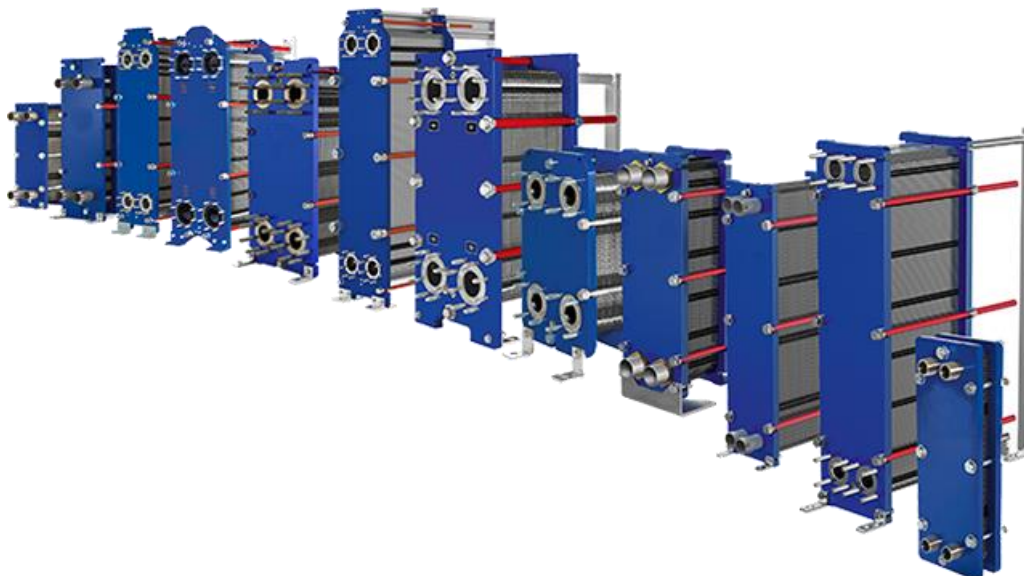
进出口接管配置更多的接口，可以灵活安装各类传感器接头，方便使用。

Plate heat exchanger assembly pipe at inlet or outlet, The pipe can install variety of sensor joint.



滤网后拉出设计，使板式换热器的清洗工作更为简便，脏堵时直接在后部拉出滤网冲洗即可。

The rear pull out design filter makes work easily when clean the plate heat exchanger, Workers can only pull out filter to wash.





## 钎焊式板式换热器

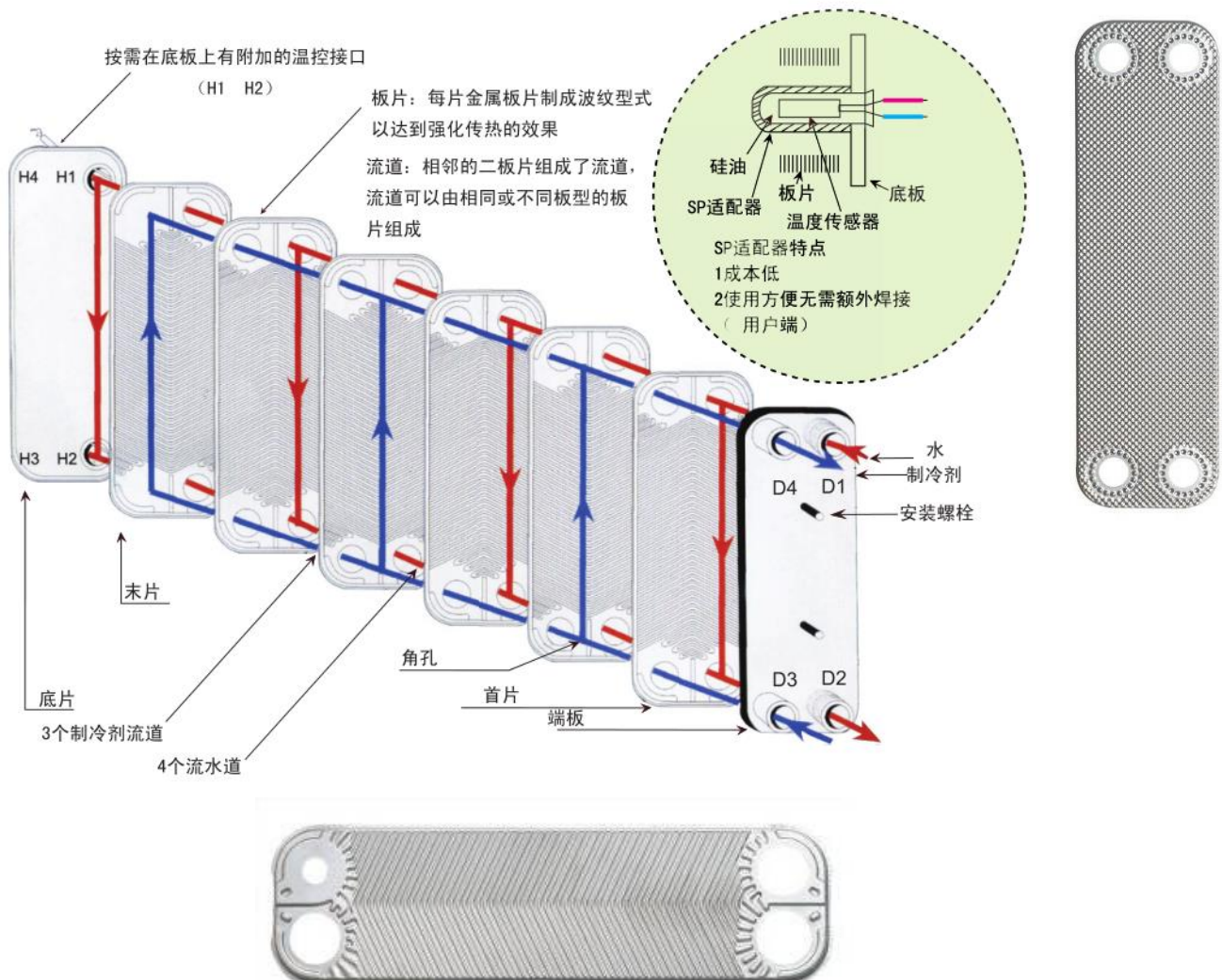
### Brazed Plate heat exchanger

钎焊式板式换热器是由一组波纹板用铜箔或镍箔在真空炉里钎焊而成，相邻两块板的波纹成 180 度角。

Brazing type plate heat exchanger is composed of a set of corrugated plate with copper foil or nickel foil in the vacuum furnace brazing, neighboring two piece of corrugated board into a 180 degree Angle.

## 钎焊式板式换热器结构

### Brazed Plate heat exchanger structure





## 技术参数

### Technical Date



钎焊板换型号	CBE Type	见型号表
最大流量	Max flow rate	0.5~300 m <sup>3</sup> /h
最高工作压力	Max working pressure	3.0 MPa
设计温度范围	Design temperature range	-195~+200℃
接管口径范围	Port size range	见接管表
板片厚度	Plate thickness	0.4mm
钎焊剂	Soldering fluxes	Cu & Ni
适用介质	Suitable medium	水; 水蒸气; 各种油; 有机溶剂; 制冷剂; 气体

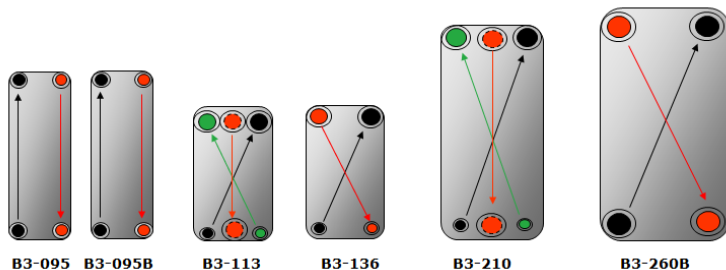
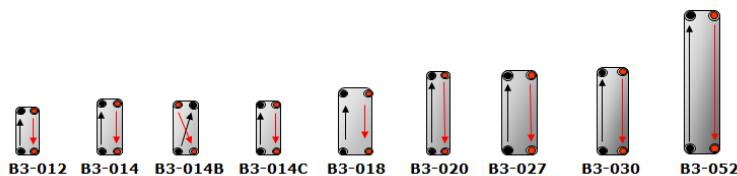
### 典型应用场合 Typical applications

- 轻纺造纸行业：废气、废液的余热利用。  
Textile paper industry: gas, liquid waste heat utilization.
- 化工行业：加热、冷却、蒸发、冷凝过程。  
Chemical Industry: heating, cooling, evaporation, condensation process.
- 电力行业：变压器油冷器、透平油冷器、水冷器。  
Power industry: transformer oil cooler, turbine oil cooler, water cooler.
- 冶金行业：轧机，连铸机，制氧机润滑油冷却器、水冷器。  
Metallurgical industry: rolling mill, continuous casting machine, oxygen machine oil cooler, water coolers.
- 区域集中供热：汽-水供热换热器、中间换热站加热器、二次水系统加热器。  
District heating: steam - water heating heat exchanger, intermediate heat exchanger station heater, secondary water system heater.
- 制冷空调和暖通行业：蒸发器、冷凝器、气体过热器、液体过冷器、回热器。  
Refrigeration and air conditioning and HVAC industry: evaporator, condenser, gas superheater, liquid subcooler, recuperator.

### 焊接接管 Welded connections

单位: mm

内径 inside diameter	上端外径 Outside diameter	高度 Height
Ø9.8	Ø14	24
Ø12.8	Ø17	24
Ø16.1	Ø19	24
Ø18.2	Ø22	24
Ø19.2	Ø22	24
Ø22.3	Ø26	24
Ø25.6	Ø30	24
Ø28.2/Ø28.7	Ø32/Ø33	30/24
Ø32	Ø36/Ø37	24/30
Ø35.1	Ø40	24/30
Ø38.5	Ø42/Ø44.5	24/30
Ø41.5/Ø42.1	Ø46	30
Ø51	Ø55	30
Ø54.1	Ø60.3	30
Ø61	Ø68	52
Ø66/Ø66.9	Ø76/Ø73	52
Ø77/Ø79.5	Ø88.9/Ø85.6	52
Ø90/Ø98	Ø102	48/52
Ø102	Ø108	48
Ø105/Ø108	Ø113	48





## 典型项目

## Typical Project

我公司承建的非洲乌干达 TORORO 镇 SULZER 16ZAV40S × 6 柴油机发电厂水系统设计与设备成套项目。其中缸套水板式换热器在该系统中的运行情况，见下图1。

Our company is responsible SULZER 16ZAV40S×6 diesel power plant system design and complete sets of equipment in Tororo, Uganda, Africa. Jacket water plate is in the operation of the system, see picture 1 .



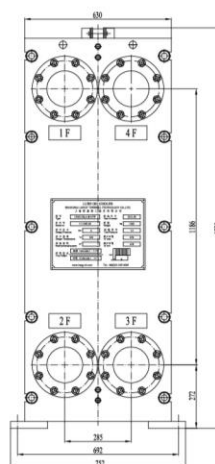
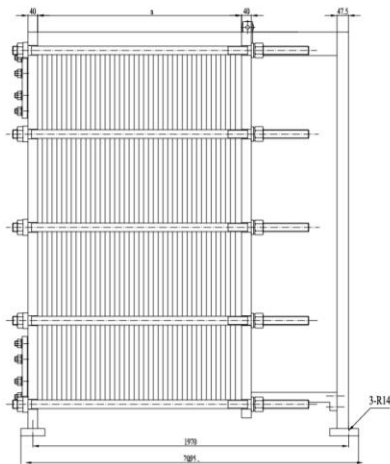
Picture 1



Picture 1

我公司承建的印度尼西亚望加锡 Deutz BV16M640 × 6 柴油机发电厂水系统设计与设备成套项目。其中滑油板式换热器在该系统中的运行情况，见下图2。

Our company is responsible Deutz BV16M640×6 diesel power plant system design and complete sets of equipment in Makassar ,Indonesia. Oil plate cooler is in the operation of the system, see picture 2



Picture 2



## 常用规格型号表

### Specifications Table

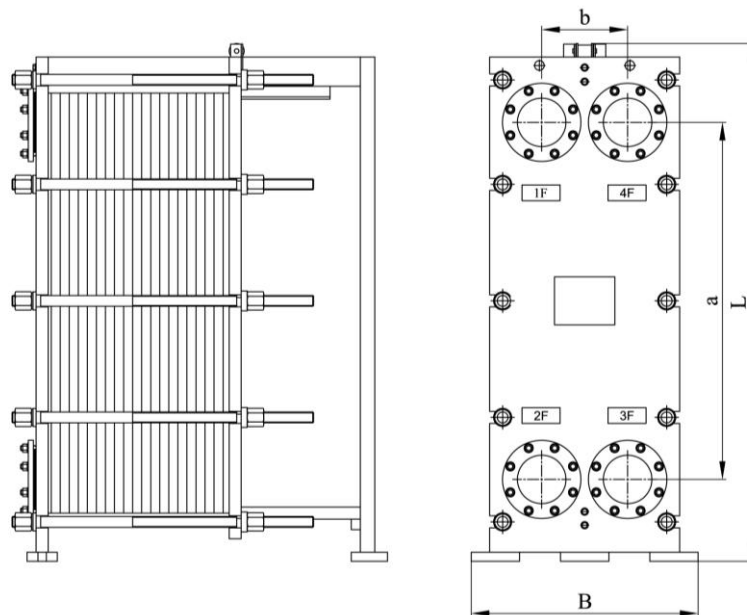
型号 Type	角孔通径 d DN (mm)	角孔定位尺寸 Location Dimension(mm)		外形尺寸 Overall Dimension(mm)		单台最大装片数量 Max assembly plate number
		a	b	L	B	
E25	DN25	240	70	320	175	80
A25	DN25	357	60	470	180	61
G32	DN32	480	61	593	180	51
F32H	DN32	675	65	799	170	51
E50D	DN50	450	100	635	290	100
E50S	DN50	675	100	947	280	100
F50L	DN50	494	126	735	310	200
F50H	DN50	894	126	1135	310	190
A50S	DN50	640	140	885	320	185
A50D	DN50	640	140	885	320	141
A50H	DN50	1036	140	1281	320	185
E50	DN50	616	145	971	360	107
E65	DN65	624	130	867	328	84
V65H	DN65	875	130	1120	320	141
A65N	DN65	592	135	830	324	141
T65H	DN65	822	135	1060	324	141
F65H	DN65	819	150	1066	310	185
A65W	DN65	380	203	700	406	89
E80	DN80	800	150	1178	365	150
E80W	DN80	725	205	1133	446	160
G80	DN80	868	212	1248	449	115
P80	DN80	1069	238	1462	480	180
A100	DN100	1338	218	1805	460	220
A100S	DN100	719	223	1109	480	235
A100D	DN100	719	223	1109	480	155
F100L	DN100	894	225	1296	470	325
F100M	DN100	1141	225	1543	480	325
F100H	DN100	1388	225	1790	480	320
T100L	DN100	779	226	1198.5	480	235
T100H	DN100	1189	226	1608.5	480	235
V100L	DN100	882	234	1370.5	506	220
V100H	DN100	1302	234	1790.5	506	220
G100	DN100	1227	257	1652	534	250
G100L	DN100	707	262	1150	575	330
G100M	DN100	1113	262	1556	575	320
G100H	DN100	1519	262	1962	575	310



型号 Type	角孔通径 d DN (mm)	角孔定位尺寸 Location Dimension(mm)		外形尺寸 Overall Dimension(mm)		单台最大装片数量 Max assembly plate number
		a	b	L	B	
E100 D	DN100	1046	292	1487	600	210
P100L	DN100	722	310	1330	604	420
P100M	DN100	1217	310	1820	604	420
P100H	DN100	1757	310	2360	604	420
A125	DN125	946	226	1340	500	180
E125	DN125	945	236	1382	519	188
E125P	DN125	1290	286	1870	860	219
E150	DN150	1186	285	1720	752	367
T150L	DN150	1320	285	1910	630	270
T150H	DN150	1800	285	2390	630	270
S150S	DN150	890	296	1422	608	310
S150D	DN150	890	296	1422	608	220
A150S	DN150	1294	298	1826	630	310
A150D	DN150	1294	298	1826	630	220
V150	DN150	1280	310	1802	650	220
G150L	DN150	1092	314	1605	675	365
G150H	DN150	1572	314	2085	675	360
E150W	DN150	1315	350	1980	880	475
P150L	DN150	1057	380	1711	720	400
P150M	DN150	1531	380	2185	720	400
P150H	DN150	2479	380	3130	720	400
E175G	DN175	1495	330	2235	930	258
E175	DN175	1305	340	1950	910	492
B200NL	DN200	1187	340	1820	720	280
A200S	DN200	1479	353	2098	720	480
A200SD	DN200	1479	353	2098	720	340
A200D	DN200	1479	353	2098	720	290
A200W	DN200	698.5	363	1310	745	260
E200L	DN200	930	365	1650	952	500
E200H	DN200	1450	365	2150	952	500
S200L	DN200	791	395	1400	775	480
S200M	DN200	1091	395	1764.5	775	480
S200H	DN200	1489	395	2162.5	775	480
T200S	DN200	910	420	1553	835	370
T200D	DN200	910	420	1553	835	340
G250L	DN250	1406	420	2147	927	375



型号 Type	角孔通径 d DN (mm)	角孔定位尺寸 Location Dimension(mm)		外形尺寸 Overall Dimension(mm)		单台最大装片数量 Max assembly plate number
		a	b	L	B	
G250M	DN250	1703	420	2444	927	365
G250H	DN250	2000	420	2741	927	355
E250S	DN250	1920	420	2765	1025	770
B250L	DN250	1013	439	1815	927	389
B250H	DN250	1476	439	2278	927	389
A250S	DN250	1939	439	2744	927	531
A250D	DN250	1939	439	2744	927	389
P250SL	DN250	915	465	1695	877	420
P250L	DN250	1290	465	2070	877	420
P250M	DN250	1477.5	465	2257.5	877	420
P250H	DN250	2415	465	3195	877	420
E250D	DN250	1800	530	2905	1225	445
E300	DN300	1960	470	3125	1225	468
S300L	DN300	1079	480	1975	1040	371
S300M	DN300	1490	480	2386	1040	371
T300L	DN300	1140	570	2020	1100	471
T300H	DN300	1720	570	2600	1100	471
B300W	DN300	1446	596	2388	1174	465
A300	DN300	1842	596	2785	1174	465
V300L	DN300	1320	598	2282	1174	415
G350L	DN350	1692	559	2580	1174	385
G350H	DN350	2029	559	2917	1174	385
E350L	DN350	1348	573	2503	1140	420
E350H	DN350	1994	573	3150	1140	530





板式换热器参数咨询表 Plate Heat Exchanger Parameter Inquiry Table

客户信息 Customer information		联系我们 Contact us	
公司名称 Company name		广州市酷浦斯机械有限公司	
联系人 Contact person		联系人 Contact person	
Tel		Tel	+86 (20) 26228016
Fax		Fax	+86 (20) 26228016*888
Email		Email	wjh@cool-plus.cn
项目名称 Project description		咨询时间 inquiry time	

介质参数 Media parameter				
No	名称 Item	Cooling medium 冷却介质	Medium by cooling 被冷却介质	单位 Unit
1	介质 Media			/
2	换热量 Heat exchanged		*	kW
3	乙二醇体积含量 Ethylene glycol			%
4	流量 Flow rate		*	m <sup>3</sup> /h
5	入口温度 Temperature inlet	★	*	°C
6	出口温度 Temperature outlet		★	°C
以上注★参数必须提供 Marked★have to be indicated; 以上注*参数至少需要提供2个 Marked*at least 2 have to be indicated;				
7	设计余量要求 Surface margin			%
8	入口工作压力 Operating pressure at inlet			bar
9	压力损失 Pressure drop			bar
10	设计压力 Design pressure			bar
11	设计温度 Design temperatures			°C
12	允许的最大空间尺寸 Maximum dimensions ( L × W × H )			mm

特殊介质物理特性参数 (选填) Physical properties of extraordinary media ( optional )				
		Cooling medium 冷却介质	Medium by cooling 被冷却介质	
13	介质密度 Density			kg/m <sup>3</sup>
14	入口温度下的动力黏度 Dyn.Viscosity at inlet temperature			Pa · s
15	出口温度下的动力黏度 Dyn.Viscosity at outlet temperature			Pa · s
16	比热 Specific heat			kJ/(kg · °C)
17	导热率 Thermal conductivity			W/(m · k)
18	污垢系数 Fouling factor			(m <sup>2</sup> .k)/W

设备交货要求 Equipment delivery requirements				
19	本批交货数量 Delivered quantity			
20	商检/船检证书种类 Commercial inspection/ship survey class			
21	包装要求 Packing requirements			
22	交货时间 Delivery time requirements			
23	交货地点 Delivery location requirements			
如果贵公司有需要, 请填上相应的内容后传给我们, 我们一定会在最短的时间内回复。 If your firm needs, please fill in the required content and send it to us. We will reply in the shortest possible time.				





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