Heat Exchanger Equipment

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JOYWELL

Factory & Workshop

◆START: Since 2009

◆INVESTMENT: CNY 20 Million

◆ EMPLOYEES: ≥150

◆SALES AMOUNT: CNY 80 Million

◆CERTIFICATE: ISO 9001, ISO 14001, CE, CCS

◆MAIN PRODUCTS: Plate Heat Exchanger, Finned Tube, Accessories

Technical Process

Plate Cutting

Automate Plate Press

Automate Plate Punching

Plate Dry and Clean

Storage

Automate Copper Coil Press &Cutting

End Plate Connect to Tube

Plate Row

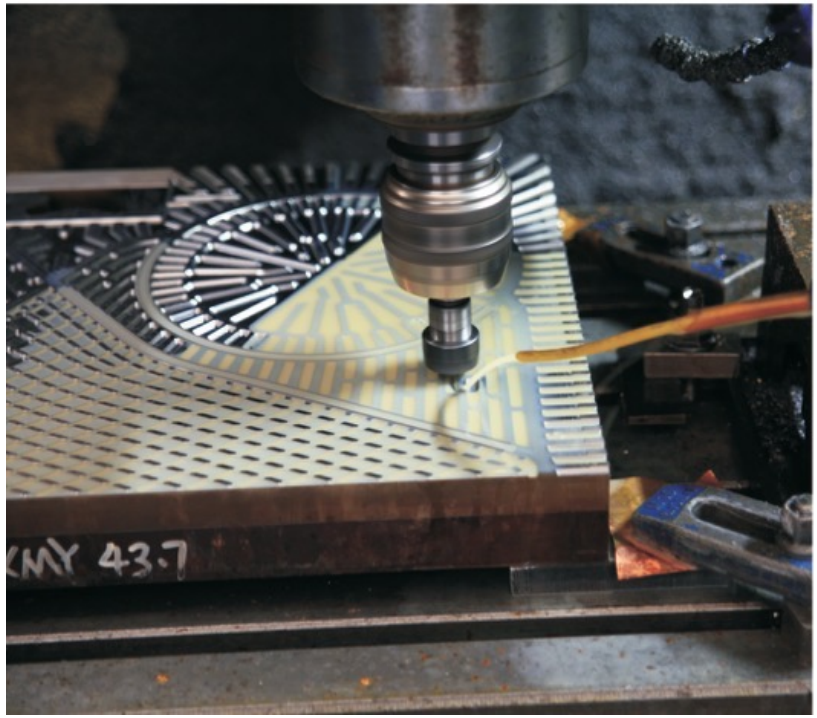
Pre-Tighten

Stacking

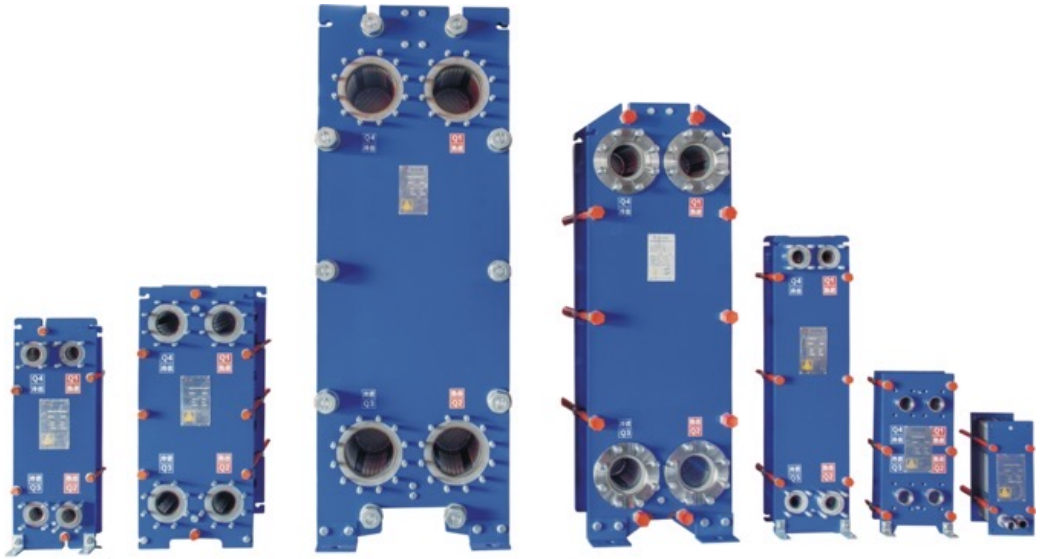
Furnace

Airtightness Test

Mould Make & Machining Equipment

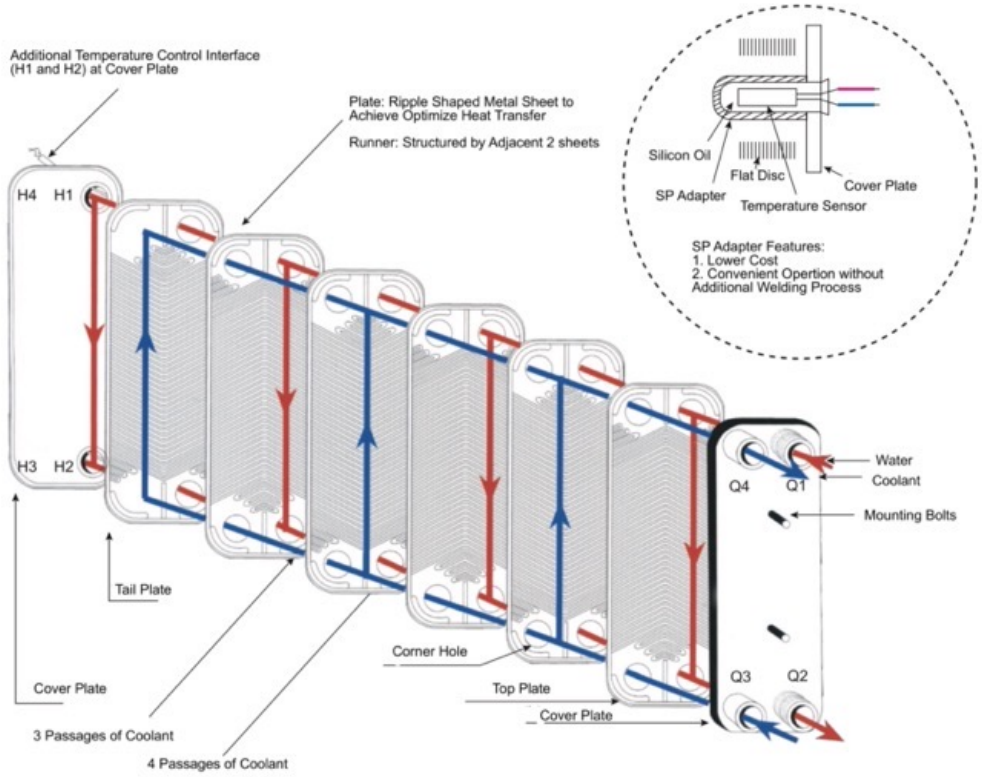


Product Range



Brazed Plate Heat Exchanger

Product Structure



BPHE Materials	
Channel Plate	SUS 316L or SUS 304
Cover Plate	SUS 304
Brazing Material	Copper
Connections	SUS 304

Applicable Medium

- All refrigerant, except chlorine and ammonia
- Water and Water Vapor
- Oil
- Organic Solvent
- Gas

BPHE Advantage

- Compact Structure and Easy installation
- Light weight: 20% - 30% of shell-tube heat exchanger
- Small consumption of water: only need 1/3 of shell tube heat exchanger water
- Durability: withstand high temperature 400 °C and high pressure 45 bar
- Low scaling coefficient: high turbulence reduces scaling coefficient

PHE Selection Form

Standard Selection Form	
Heat exchange capacity: KW	Pressure Requirement: ≥MPA
Product Type: Brazed Plate Heat Exchanger ( ). Gasket Plate Heat Exchanger ( )	
Hot Side	**Cold Side**
Fluid Name:	Fluid Name:
Inlet Temperature: ℃	Inlet Temperature: ℃
Outlet Temperature: ℃	Outlet Temperature: ℃
Working Medium Flow: m³/h	Working Medium Flow: m³/h
Pressure Drop Design Requirements: ≤ KPA	Pressure Drop Design Requirements: ≤ KPA
Pipe Require Type:	Pipe Require Type:
Inter Joint Pipe Dimension:	Inter Joint Pipe Dimension:
Outlet Joint Pipe Dimension:	Outlet Joint Pipe Dimension:
Accessories Requirements	
Install Bolt: Yes ( ). No( )	Fixed Support: Yes ( ). No( )
Temperature Tube: Yes ( ). No( )	Temperature Tube Location
Special Requirement: 1.For special working medium, please provide the specific hear, viscosity, density and thermal conductivity in three temperature condition, for mixed working medium, please provide the composition and proportion. 2. Please provide working pressure and allowable pressure loss, or we will calculate according to 100 KPA	

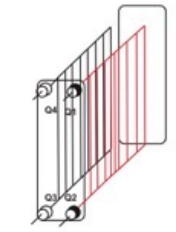
Evaporator Selection Form	
Cooling capacity: KW	Pressure Requirement: ≥MPA
Hot Side	**Cold Side**
Fluid Name:	Fluid Name:
Inlet Temperature: ℃	Inlet Temperature: ℃
Outlet Temperature: ℃	Outlet Temperature: ℃
Working Medium Flow: m³/h	Working Medium Flow: m³/h
Pressure Drop Design Requirements: ≤ KPA	Pressure Drop Design Requirements: ≤ KPA
Pipe Require Type:	Pipe Require Type:
Inter Joint Pipe Dimension:	Inter Joint Pipe Dimension:
Outlet Joint Pipe Dimension:	Outlet Joint Pipe Dimension:
Accessories Requirements	
Install Bolt: Yes ( ). No( )	Fixed Support: Yes ( ). No( )
Temperature Tube: Yes ( ). No( )	Temperature Tube Location

Brazed Plate Heat Exchanger

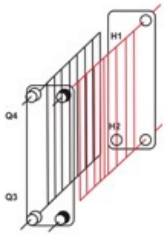
PHE Selection Form

Condenser Selection Form	
Heating capacity: KW	Pressure Requirement: ≥MPA
Hot Side	**Cold Side**
Fluid Name:	Fluid Name:
Inlet Temperature: ℃	Inlet Temperature: ℃
Outlet Temperature: ℃	Outlet Temperature: ℃
Working Medium Flow: m^3/h	Working Medium Flow: m^3/h
Pressure Drop Design Requirements: ≤ KPA	Pressure Drop Design Requirements: ≤ KPA
Pipe Require Type:	Pipe Require Type:
Inter Joint Pipe Dimension:	Inter Joint Pipe Dimension:
Outlet Joint Pipe Dimension:	Outlet Joint Pipe Dimension:
Accessories Requirements	
Install Bolt: Yes ( ). No( )	Fixed Support: Yes ( ). No( )
Temperature Tube: Yes ( ). No( )	Temperature Tube Location

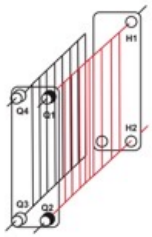
Process Combination



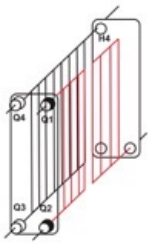
1.Pipe connectors located on the front cover plate



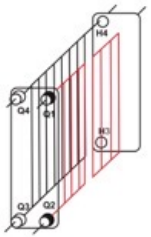
2.Water Pipe connector located on the back cover plate



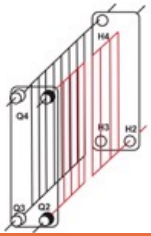
3. Two additional water pipe connectors can be used for temperature control installation



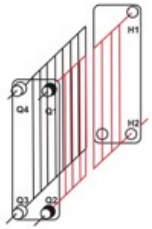
4. Two refrigerant exits can minimize the flow rate in the connections



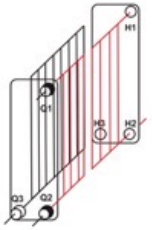
5. Dual circuits in refrigerant side, one flow channel in water side



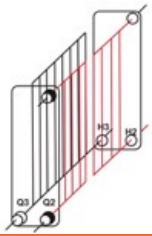
6. Dual circuits in refrigerant side and dual flow channels in water side can achieve relatively higher efficiency circuit



7.Dual circuits in water side can be used for cooling two different water systems



8.Dual circuits in water side and dual flow channels in refrigerant side is used for various cooling media



9.Dual flow channels in both sides is mainly used for the system with very close temperature

BPHE Channel Type

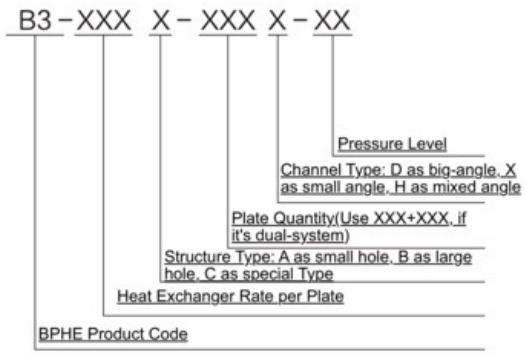
D Type

H Type

X Type

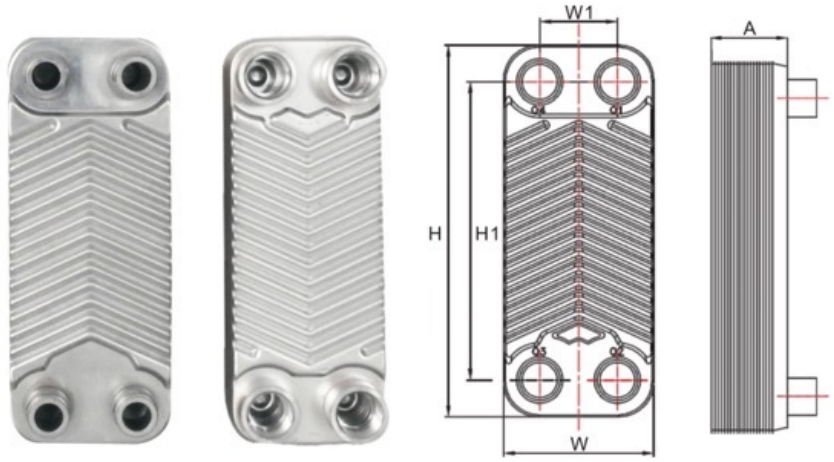
	Feature
D Type	High heat transfer coefficient, high resistance, used for small flow with high heat-transfer condition, such as refrigerant phase change heat transfer.
H Type	Between D Type and X Type
X Type	Low heat transfer coefficient, low resistance, used for big flow with low heat-transfer condition, such as air heat exchanger under ambient pressure

BPHE Naming Rule



Brazed Plate Heat Exchanger

BPHE Model

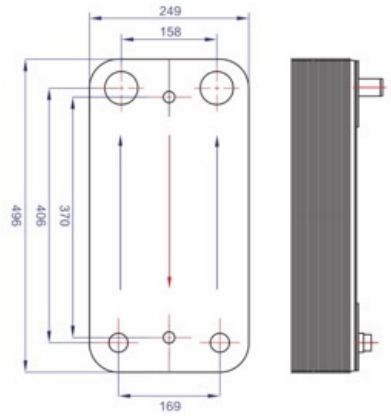


BPHE Model							
Model	A(mm)	W(mm)	H(mm)	W1(mm)	H1(mm)	Max Tubing	Max Plate No
B3-012	5+2.3N	73	190	40	154	DN20	80
B3-013	5+2.3N	77.5	192	40/42	154	DN20	80
B3-014	9+2.3N	76	206	42	172	DN20	80
B3-020	9+2.3N	76	310	42	280	DN20	100
B3-026	9+2.4N	111	310	50	250	DN40	150
B3-028	9+2.4N	126	300	64	240	DN40	150
B3-050	9+2.4N	111	525	50	466	DN40	150
B3-060	9+2.4N	125	539	64	479	DN40	150
B3-095	11+2.8N	191	616	92	519	DN50	240
B3-110	11+2.4N	185	611	92	519	DN50	250
B3-120	13+2.38N	246	528	174	456	DN50	240
B3-190	12.5+2.6N	307	695	179	567	DN80	240
B3-190X	13+2.7N	248	662	122	536	DN80	240
B3-200	12.5+2.8N	319	734	205	622	DN80/DN100	240
B3-300	13+2.75N	370	985	214	861	DN100	250

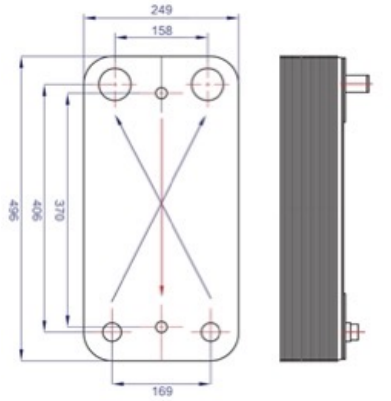
Parameter	B3-014	B3-020	B3-026	B3-028	B3-050	B3-060	B3-095	B3-110	B3-120	B3-190	B3-190X	B3-200	B3-300
Heat Exchanger Rate per Plate (㎡)	0.014	0.02	0.026	0.028	0.05	0.06	0.095	0.11	0.12	0.19	0.19	0.2	0.6
Design Pressure (MPa)	3.0/4.5	3.0/4.5	3.0/4.5	3.0/4.5	3.0/4.5	3.0/4.5	3.0/4.5	3.0/4.5	3.0/4.5	3.0/4.5	3.0/4.5	3.0/4.5	1.5/3
Testing Pressure (MPa)	4.5/6.5	4.5/6.5	4.5/6.5	4.5/6.5	4.5/6.5	4.5/6.5	4.5/6.5	4.5/6.5	4.5/6.5	4.5/6.5	4.5/6.5	4.5/6.5	2.0/4.5
Plate Package THK (mm)	9+2.3N	9+2.3N	9+2.4N	9+2.4N	9+2.4N	9+2.4N	11+2.8N	11+2.4N	13+2.38N	12.5+2.6N	13+2.7N	12.5+2.8N	22+2.78N
Effective Heat Exchange Area (㎡)	0.014(N-2)	0.02(N-2)	0.026(N-2)	0.028(N-2)	0.05(N-2)	0.06(N-2)	0.095(N-2)	0.11(N-2)	0.12(N-2)	0.19(N-2)	0.19(N-2)	0.2(N-2)	0.6(N-2)
Design temperature (℃)	-100/+200	-100/+200	-100/+200	-100/+200	-100/+200	-100/+200	-100/+200	-100/+200	-100/+200	-100/+200	-100/+200	-100/+200	-100/+200
Channel Type	D	D	D,X,H	D	D,X,H	D	D,X,H	D,X,H	D	D	D	D,X,H	D
Plate Material	304, 316L	304, 316L	304, 316L	304, 316L	304, 316L	304, 316L	304, 316L	304, 316L	304, 316L	304, 316L	304, 316L	304, 316L	304, 316L
Max Plate	80	100	150	150	150	150	240	250	240	240	240	240	280
Max Tubing	DN20	DN20	DN40	DN40	DN40	DN40	DN50	DN50	DN50	DN80	DN80	DN80/DN100	DN125

Brazed Plate Heat Exchanger

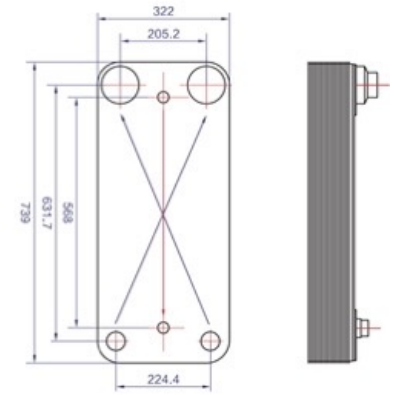
BPHE Model



B3-100	
Heat Exchanger Rate per Plate (㎡)	0.1
Design Pressure (MPa)	3.0/4.5
Testing Pressure (MPa)	4.5/6.5
Plate Package THK (mm)	10+2.15N
Effective Heat Exchange Area (㎡)	0.1(N-2)
Design temperature (℃)	-100/+200
Channel Type	D
Plate Material	304, 316L
Max Plate	250
Max Tubing	DN50

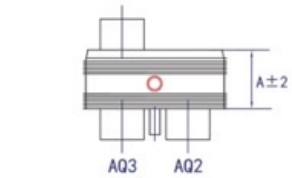


B3-100D	
Heat Exchanger Rate per Plate (㎡)	0.1
Design Pressure (MPa)	3.0/4.5
Testing Pressure (MPa)	4.5/6.5
Plate Package THK (mm)	10+2.15N
Effective Heat Exchange Area (㎡)	0.1(N-2)
Design temperature (℃)	-100/+200
Channel Type	D
Plate Material	304, 316L
Max Plate	250
Max Tubing	DN50

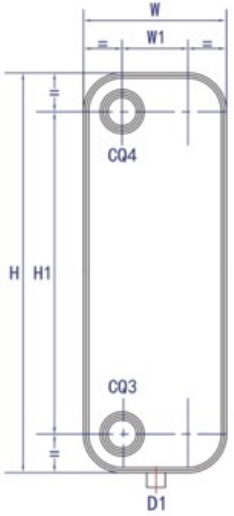


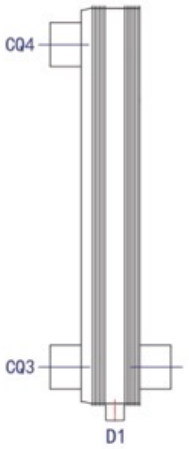
B3-210	
Heat Exchanger Rate per Plate (㎡)	0.21
Design Pressure (MPa)	3.0/4.5
Testing Pressure (MPa)	4.5/6.5
Plate Package THK (mm)	13+2.55N
Effective Heat Exchange Area (㎡)	0.2(N-2)
Design temperature (℃)	-100/+200
Channel Type	D
Plate Material	304, 316L
Max Plate	280
Max Tubing	DN80

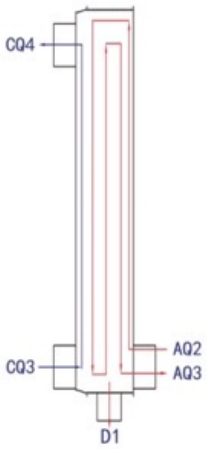
BPHE For Air Dryer



Note: CQ3 is fluorine inlet, CQ4 is fluorine outlet, AQ2 is compressed air inlet, AQ3 is compressed air outlet







BPHE For Air Dryer					
Model	H(mm)	H1(mm)	W(mm)	W1(mm)	Max Tubing
CAD014	206	172	76	42	DN20
CAD026	310	250	111	50	DN32
CAD095	616	519	191	92	DN50
CAD200	734	622	319	205	DN100

Brazed Plate Heat Exchanger

Condenser Selection under Standard Condition

Note: Designed condition is Refrigerant condensed at 45℃, outlet water temperature 40 ℃, pressure loss < 0.1 MPa

Heat Power (KW)	R22					R134A					R410A					R407C					Water Flow Rate (T/H)
	Plate Change Model B3-																				
	020A-	026A-	050A-	095A-	200B-	020A-	026A-	050A-	095A-	200B-	020A-	026A-	050A-	095A-	200B-	020A-	026A-	050A-	095A-	200B-	
3.0	10D	12D				10D	12D				10D	12D				14D	18D				0.52
4.5	14D	16D				14D	16D				12D	16D				20D	24D				0.78
6.0	18D	22D				16D	20D				14D	18D				26D	32D	14D			1.03
9.0	24D	30D	14D			22D	28D	12D			20D	26D	10D			38D	46D	20D			1.55
12.0	32D	40D	18D			28D	36D	16D			26D	34D	14D			48D	60D	26D			2.07
15.0	38D	50D	20D			32D	44D	18D			30D	42D	16D			60D	74D	30D			2.58
18.0	44D	58D	22D			38D	52D	20D			36D	50D	18D			70D	88D	36D			3.10
21.0	52D	66D	26D			46D	60D	24D			42D	58D	22D					42D			3.62
24.0	60D	76D	28D			54D	68D	26D			48D	66D	24D					46D			4.13
27.0			32D					30D					28D					52D	32D		4.65
30.0			34D	22D				32D	20D				30D	18D				58D	34D		5.17
33.0			38D	24D				36D	22D				34D	20D				64D	38D		5.68
36.0			40D	26D				38D	24D				36D	22D				68D	42D		6.20
39.0			44D	28D				42D	26D				40D	24D				74D	44D		6.72
42.0			48D	30D				46D	28D				44D	26D				80D	48D		7.23
45.0			50D	32D				48D	30D				46D	28D				84D	50D		7.75
48.0			54D	34D				52D	32D				50D	30D				90D	54D		8.27
51.0			58D	36D				56D	34D				54D	32D				96D	56D		8.78
54.0			60D	38D				58D	36D				56D	34D				100D	60D		9.30
57.0			64D	40D				62D	38D				60D	36D					62D		9.82
60.0			66D	42D				66D	40D				64D	38D					66D		10.33
75.0				50D					46D					42D					82D		12.92
90.0				60D	30D				54D	28D				50D	28D				98D	42D	15.50
105.0				68D	34D				62D	32D				58D	32D				112D	48D	18.08
120.0				78D	40D				72D	38D				66D	38D				128D	54D	20.67
150.0				96D	48D				88D	46D				80D	46D				160D	68D	25.83
180.0				114D	58D				104D	56D				96D	56D					80D	31.00
210.0				132D	68D				120D	66D				112D	66D					92D	36.17
240.0				150D	76D				138D	74D				128D	74D					106D	41.34
270.0					86D					84D					84D					118D	46.50
300.0					96D					94D					94D					132D	51.67

Brazed Plate Heat Exchanger

Evaporator Selection under Standard Condition

Note: Designed condition is Refrigerant evaporated at 2℃, inlet water temperature 12 ℃, outlet water temperature 7℃, pressure loss < 0.1 MPa

Refrigerator Power (KW)	R22					R134A					R410A					R407C					Water Flow Rate (T/H)
	Plate Change Model B3-																				
	020A-	026A-	050A-	095A-	200B-	020A-	026A-	050A-	095A-	200B-	020A-	026A-	050A-	095A-	200B-	020A-	026A-	050A-	095A-	200B-	
2.5	14	16				14	16				12	14				10	12				0.43
3.8	18	20				18	20				14	18				12	16				0.60
5.0	22	24				22	24				18	22				16	20				0.86
7.5	32	34	18			32	34	18			26	30	16			24	26	14			1.28
10.0	44	46	22			46	48	22			32	38	18			30	34	16			1.71
12.5	52	54	26			54	56	28			40	46	22			36	42	20			2.14
15.0	62	64	30			64	66	32			46	54	24			42	48	22			2.58
17.5			34					38			54	64	28			50	56	26			3.00
20.0			38					42					32					28			3.43
22.5			42					48					34					32			3.85
25.0			48	30				52	30				38	26				34	24		4.28
27.5			52	32				58	32				42	28				38	26		4.71
30.0			56	36				62	36				44	30				40	28		5.14
32.5			60	38				68	38				48	32				44	30		5.57
35.0			66	40				74	40				50	34				46	32		6.01
37.5			70	44				80	44				52	36				48	34		6.42
40.0			76	46				84	46				56	38				52	36		6.85
42.5			80	48				90	48				60	40				56	38		7.28
45.0				52					52				62	42				58	40		7.71
47.5				54					54				66	44				62	42		8.14
50.0				56					58				70	46				64	44		8.56
62.5				70					72					56					50		10.70
75.0				84	40				86	46				66	32				60		12.86
87.5				96	46				100	52				76	36				70		15.00
100.0				112	52				114	60				86	40				78	38	17.13
125.0				142	66				148	74				108	50				98	46	21.41
150.0				174	78				188	88				128	58				118	54	25.69
175.0					90					104				150	66				138	64	29.97
200.0					104					118				172	76				160	72	34.25
225.0					116					134					84					78	38.52
250.0					130					152					94					88	42.80

Brazed Plate Heat Exchanger

Economizer Selection

10℃ difference between the main side and vaporization temperature						5℃ difference between the main side and vaporization temperature					
Refrigerating Capacity	B3-014	B3-020	B3-026	B3-050	B3-095	B3-014	B3-020	B3-026	B3-050	B3-095	B3-200
1KW	8D					14D	6D				
3KW	12D	6D				34D	10D				
6KW	22D	10D	12D				16D	22D	10D		
9KW			18D	10D				32D	12D		
12KW			22D	12D				40D	16D		
15KW			26D	14D				50D	18D		
18KW			30D	18D					22D		
21KW			34D	20D					24D		
24KW			40D	24D					28D		
27KW			44D	26D					32D		
30KW				28D					34D		
33KW				32D					38D		
36KW				34D	14D				40D	26D	
39KW				38D	16D				44D	28D	
42KW					18D					30D	
45KW					20D					32D	
50KW					22D					34D	
55KW					22D					38D	
60KW					24D					40D	
65KW					26D					44D	
70KW					28D					46D	
75KW					30D					50D	26D
80KW					32D					54D	28D
100KW					40D						34D

Air Compressor Waste Heat Recovery Selection

Air Compressor Power KW	Heat Recovery Power KW	50-60℃ Recirculation Heat Exchanger	50-70℃ Recirculation Heat Exchanger	50-80℃ Recirculation Heat Exchanger
22	15.4	B3-050B-20X	B3-050B-20H	B3-050B-28H
30	21	B3-050B-26X	B3-050B-28H	B3-050B-36H
37	25.9	B3-050B-30X	B3-050B-34H	B3-050B-44H
45	31.5	B3-050B-38X	B3-050B-42H	B3-050B-54H
55	38.5	B3-050B-44X	B3-050B-52H	B3-050B-66H
75	52.5	B3-050B-62X	B3-050B-70H	B3-050B-94H
90	63	B3-095B-40D	B3-095B-48D	B3-095B-58D
110	77	B3-095B-50D	B3-095B-58D	B3-095B-68D
132	92.4	B3-095B-60D	B3-095B-68D	B3-095B-80D
160	112	B3-095B-72D	B3-095B-82D	B3-095B-98D
185	129.5	B3-095B-86D	B3-095B-94D	B3-095B-120D
200	140	B3-095B-92D	B3-095B-100D	B3-200-82D
220	154	B3-095B-104D	B3-095B-110D	B3-200-90D
250	175	B3-095B-120D	B3-095B-124D	B3-200-102D
280	196	B3-095B-138D	B3-095B-140D	B3-200-112D
300	210	B3-200-74H	B3-200-104H	B3-200-120D
330	231	B3-200-82H	B3-200-114H	B3-200-132D
355	248.5	B3-200-88H	B3-200-124H	B3-200-142D
370	259	B3-200-92H	B3-200-128H	B3-200-148D
400	280	B3-200-100H	B3-200-138H	B3-200-160D
450	315	B3-200-114H	B3-200-154H	B3-200-178D
500	350	B3-200-128H	B3-200-172H	B3-200-198D

Brazed Plate Heat Exchanger

BPHE Installation

- Plate heat exchanger should be fixed vertically. If chose horizontal or tilt installation, it will not just cause a toboggan of heat transfer efficiency, but also phenomenon of icing and blockage when the exchanger is refrigerating.

- Plate heat exchanger products with small pieces(≤ 30 pcs) of model number B3-014, B3-015, B3-020, B3-026 can be fixed directly on the pipe, and large piece of the above on the vibration damper plate, or fixed by riveted bolts, panel beating, bracket and in other ways. If there is a shock, shockproof connection should be used.

- Unless in special condition, it shall ensure hot side medium is fed from the top and discharged from the bottom and cold side medium is fed from the bottom and discharged from the top as the heat exchanger is connected with system to guarantee good heat convection and avoiding improper connection.

- When plate heat exchanger is connected to pipe in brazing type, first you should clean up the surface, remove the grease, brush in chlorate(or silver soldering flux), insert the copper pipe into the connection, and braze with silver brazing with more than 45% silver. When jointing, aim the flames at the pipes, the highest temperature is not more than 650℃, and the jointing time of the same joint should not be too long. In order to prevent inner from oxidizing, nitrogen should be filled in the heat exchanger.

- When plate exchanger larger than B3-095, is connected pipe is brazing type, a wet cloth should be wrapped up in the interface to avoid high temperature. In order to limit heating zone, there should be an angle at the range of the pipe and joint (normally an angle of 30°), using tig or mig. In order to prevent inner from oxidizing, nitrogen should be filled in the heat exchanger.

BPHE Operation and Maintenance

- **Anti prevent clogging**

If foreign matters enter into the channel of the heat exchanger or the channel is seriously scaled, the blockage for channel will appear, when being used as evaporator, it will cause freezing and used as condenser, it will cause corrosion; both will damage the structure of heat exchanger and result in inner leakage. So it need to pay attention to the pressure loss change of medium before and after passing through heat exchanger, if pressure loss increases suddenly, it shall shut down to clean and maintain the heat exchanger in time, if necessary, the heat exchanger shall be replated to avoid greater losses.

- **Icing prevention**

A. Use antifreeze when the vaporizing temperature is close to the freezing point of one side of liquid.
B. Prevent too little overfilling of refrigerant resulting in over-lower vaporizing temperature
C. Clean and maintain it at routine interval to prevent icing arising from blocking resulted from the scaling in heat exchanger pipes
D. implement soft treatment for water with higher hardness so that the icing is avoided as the heat exchanger pipes is blocked as a result of scaling.
E. Mount drainage devices and carry out evacuation treatment for non-service heat exchanger in such way that the icing is avoided inside the heat exchanger in such way that the icing is avoided inside the heat exchanger when the ambient temperature is too lower.
F. Mount and use the filter screen its mesh less than 1mm in such way the floccus, filaments and bigger sundries are prevented to entering the heat exchanger and the icing is avoided as a result of blocking inside the heat exchanger.
G. Mount water flowing switch for the purpose of guarantee of constant water flowing pre-, middle- and post-operation of compressor in order to prevent the hydraulic pump against shutting down emergently accidentally during in-processing system.
H. Mount low-voltage protection control switch to prevent against too lower suction pressure.
I. Mount protection controller for post expansion valve temperature, then shut off compressor when the post calve temperature is too lower.
J. Mount low-temperature protection controller for chilled water outlet for with cements of high tempsensitivity.
K. Pay attention to avoiding the failure or delayed control of controller.

- **Corrosion prevention**

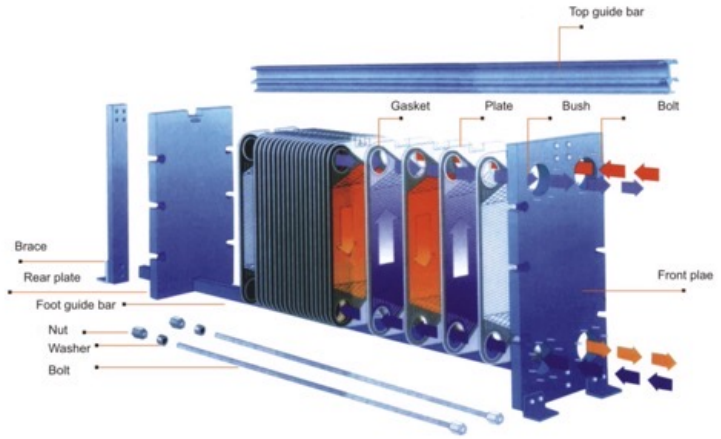
A. In order to prevent corrosion heat exchanger against, if must be guaranteed that no affect of corrosion from the heat exchanger mounted and in-service environment as well as medium for exchanging heat on stainless steel metal and copper metal will take place(the content of chloride ion and sulfate ion in heat exchanging medium usually does not exceed 100mg/l)
B. Use the filter screen with mesh less than 1mm in such way the floccus, filaments and bigger sundries are prevented to entering the heat exchanger resulting in blocking.
C. Clean the scaling inside the heat exchanger in time.
D. Ensure that the system is in constant operation to prevent the plates of heat exchanger against strain corrosion resulted from the violent or frequent changes of pressure of system pipes.
E. The liquid into heat exchanger shall be fully drained when the system shuts down its operation and be in long-term non-service.

- **Cleaning**

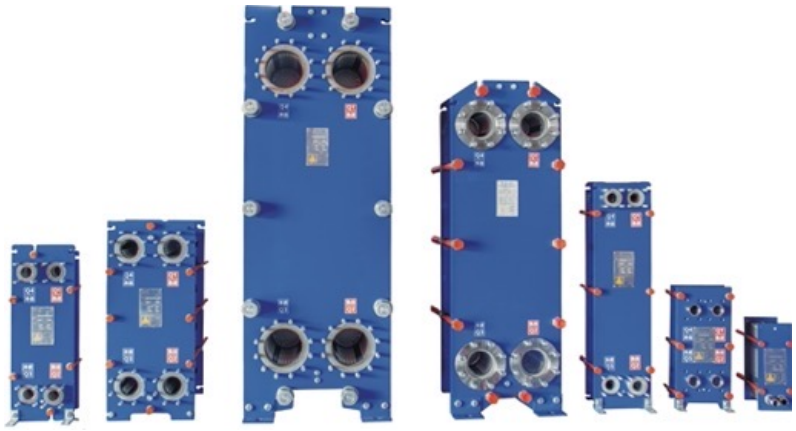
As for plate heat exchanger, the scaling will occur when the pressure drop increases during its operation. Clean the general oil scaling with cleaning agent; in case of serious scaling, clean it in reverse flow manner for 24 hours with chemicals nondestructive to stainless steel metal and copper metal)e.g. phosphoric acid with concentration of 5% or peroxide acid, mosquito acid, citrate, acetic acid, oxalic acid or other organic acids). When cleaning, control the flowing velocity of cleaning liquid by means of pump pressurizing and the optimum flowing velocity is 1.5-2 times of that of previous liquid. After completion of cleaning, wash the cleaning liquid in the system with plenty of cleaning water, prior to starting the system.

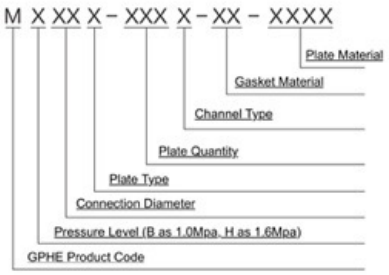
Gasket Plate Heat Exchanger

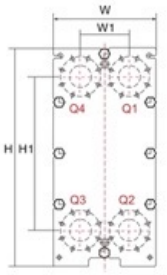
GPHE Structure Design

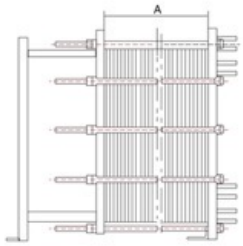


GPHE Model









GPHE Advantage (Compare with Tubular Heat Exchanger)

Plate heat exchanger consists of a series of corrugated metal plates which have 4 holes in the corner used for two kinds of liquid channel through. The metal plates are fixed in the frame which have fixed and movable plate on both sides and tightened by stud bolts. The gaskets on the plates obstruct the liquid channel and leading liquids flowing through their own ways inter actively to exchange heat. The quantity and size of the plates are determined by liquid amount, physical medium, pressure and temperature o the flow. The corrugated plate is not only improving the turbulence extent of the 110w but also forming supporting points to reduce the pressure difference among medias. All plates are linked to the upper guide bar and positioned by the lower guide bar. Their ends are posed to the supporting lever. Because of high efficiency, space and energy effective, simple maintenance, etc.

GPHE Features

High Heat Transfer Efficiency	When the media flowing through the plates in a lower Reynold number, it can create turbulence, moreover, the smooth plates is not easy to generate scaling, so that the system has very high heat transfer efficiency in general water-to-water heat exchange process, this system's heat transfer efficiency can achieve as high as 5000w/㎡.k which is higher than tubular heat exchanger by 204 times
High Recycle Rate	Due to high exchanging efficiency, the heat transfer temperature can be very low, it's best for lower-heat energy recycle. Generally, the heat recovering rate of plate heat exchanger is up to 90%.
High Flexibility	For plates can be organized for different courses, plate heat exchanger could be designed to its optimal point and to flexibly suit the heat load changes without changing the frame, rest is only need to changing the plate number to suit new conditions,
Low Retention Volume	Low retention volume due to the small channel, therefor plate heat exchanger is good at controlling the temperature and reduce the weight of the devices, especially for heat sensitive material processing.
Compact Structure	The space occupied by plate heat exchanger is less than others. Under the same conditions, the space of plate heat exchanger is 1/3 or ¼ of tubular heat exchanger and it doesn't need extra room during maintenance.
Easy Maintenance	The plate can be cleaned in site, due to there is no dead end on it. The arrangement of course channel, the inlet and outlet of the eclectic media of heat exchanging fixed on the constant plate. This design is helpful cause no need to knock down the channel during cleaning.

GPHE Model

Model	A (mm)	W (mm)	H (mm)	W1 (mm)	H1 (mm)	Max Tubing (mm)	Max Plate (Pcs)	Max Flow (m³/h)
M30	N(2.0+X)	180	480	60	356	32	80	15
MH60B	N(2.0+X)	320	920	140	640	50	250	36
MH60H	N(3.0+X)	320	920	140	640	50	203	36
MH100B	N(2.55+X)	470	1069	225	719	100	278	140
MH100H	N(3.95+X)	470	1069	225	719	100	180	140
MH150B	N(2.5+X)	610	1815	298	1294	150	600	360
MH150H	N(3.95+X)	610	1815	298	1294	150	600	360
MH200H	N(4.0+X)	780	2160	353	1478	200	398	600
MH250H	N(3.5+X)	920	2698	439	1939	250	300	795
P50	N(2.4+X)	300	678	126	394	50	200	36
P150	N(4.0+X)	608	1425	296	890	150	300	360
T200	N(4.0+X)	740	1460	363	698	200	300	600

X as Plate thickness

Gasket Plate Heat Exchanger

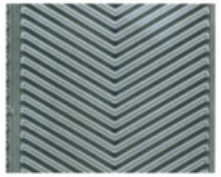
GPHE Plate & Gasket Material and Applicable Medium

Plate Material	Applicable Fluid
Stainless Steel	Clean water, river water, cooking oil, mineral oil
Ti, Ti-Pd	Sea water, salty water, salinization compounds
20Cr, 18Ni, SMO	Dilute sulphuric acid, inorganic acids
Ni	High temperature, High concentrations of caustic soda
Hastelloy (C276, D205, B2G)	Cconcentrated sulphuric acid, hydrochloric acid, phosphoric acid

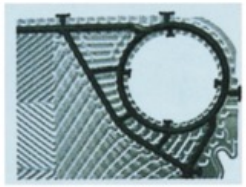
Gasket Material	Usage Temperature	Applicable Fluid
NBR	-15℃ ~ +135℃	Water, sea water, mineral oil, salty water
EPDM	-25℃ ~ +180℃	Hot water, steam, acid, alkali
F26	-55℃ ~ +230℃	Acid, alkali, fluids
FTP	0℃ ~ +160℃	Cconcentrated acid, alkali, steam, high temperature oil

Each Plate Contains 2 Parts	
Metal Plate	Produced into different patterns based on different working conditions to ensure the best heat transfer efficiency
Rubber Gasket	Fixed in the gasket slot around plate edge to seal the plates so that the medium flow can be formed

X: Small Angel Plate

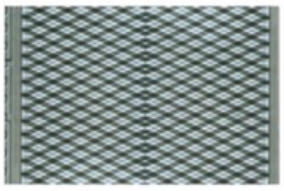


D: Big Angel Plate



X+X: X Type Channel

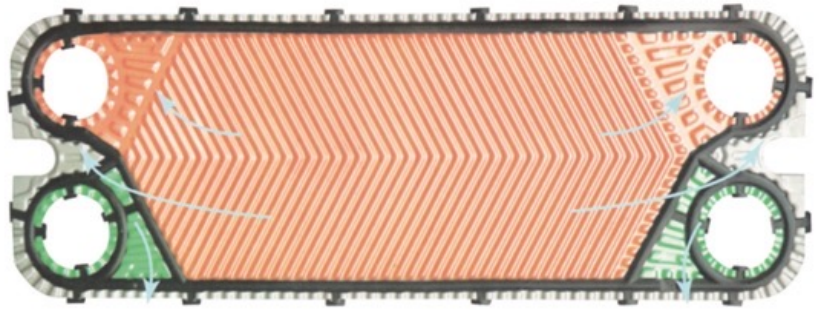
X+D: H Type Channel



D+D: D Type Channel

Sealing Principle

Gasket is adhered to the corrugated plate, designed as double channels sealed structure, with telltale hole. When media let out from the first sealed channel, it will go through the telltale hole, then leak problem can be solved before media mixed.



Fixation and Seal

The clip-on gasket divided the fixation and seal function, so when seal function is not working, the seal function will not be effected.

Gasket Connection Type	
Glued Type	Heat curing 2 liquid bonding agent, to achieve high adhesive force, good seal ability, waterproof, good tensile strength, good stability.
Clip-on Type	Insert the jump ring into the plate slot and fix it, easy to remove and replace, reduce the maintenance cost and time.

Gasket Plate Heat Exchanger

GPHE Production Field

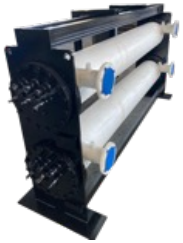
Shell-Tube Heat Exchanger

Evaporator

Condenser

Air Cooled Module

Acid Evaporator



Mariculture

Single Screw Assembly

STHE Model

XX X XXX XX XX – X

- Pipe Code: Copper-None; Titanium Tube-T SUS-B; Aldurbra-AL; Alpaka-N
- Pipe SPEC: 5(ϕ140), 6(ϕ168), 8(ϕ219), 9(ϕ245), 10(ϕ273)
- Fluorine System Pass Rate: S, D, T, Q, P, TT
- Heat Exchange Capacity: HP
- Product Name: Combine(H), Evaporator(E), Condenser(C), Oil Separator(OS), Gas-Liquid Separator(GS), Rreservoir(R), Oil Cooler(GLC), Other (T)
- YL

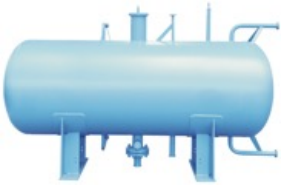
Double Screw Assembly

Reservoir

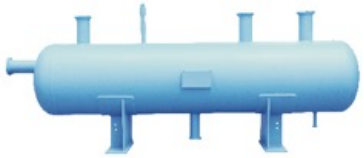
Air Cooler

Oil Cooler

Gas-Liquid Separator



Ammonia Separator



Siphon Tank

Separator

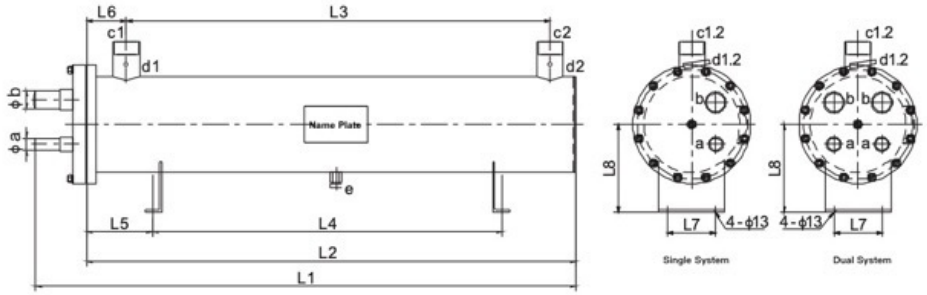
Reaction Still

Heat-Exchange Container

Shell-Tube Heat Exchanger

Single (Dual) System Evaporator (3HP-40HP)

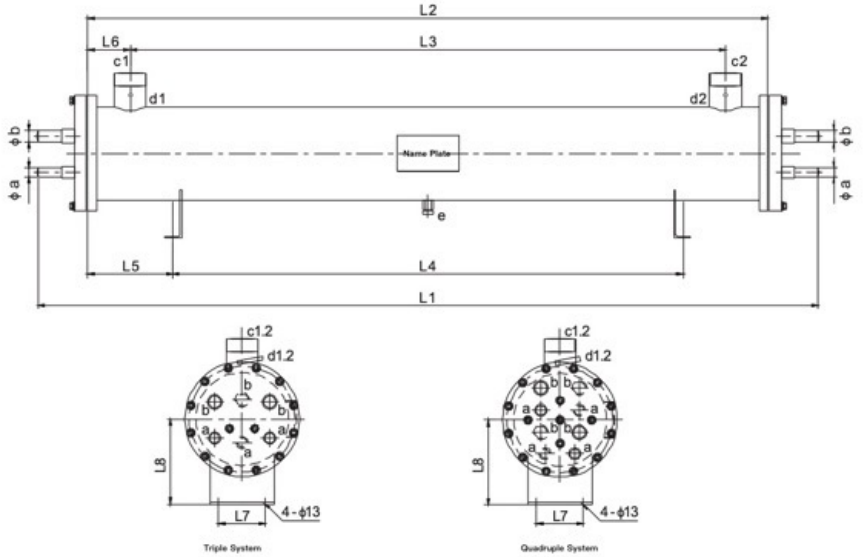
Mode YLE	Capacity	Dimension (mm)								Connection (mm)				
	KW	L1	L2	L3	L4	L5	L6	L7	L8	a	b	C1.2	D1.2	e
3S5	8.7	512	400	280	300	60	70	80	150	16	22	1”	DN8	1/2”
5S5	14.5	732	620	500	400	100	70	80	150	16	22	1”	DN8	1/2”
8S5	23.3	962	850	720	600	100	80	80	150	22	28	1.5”	DN8	1/2”
10S6	29.1	912	800	670	600	100	80	80	150	22	28	1.5”	DN8	1/2”
10D6	29.1	912	800	670	600	100	80	80	150	16	22	1.5”	DN8	1/2”
12S6	34.9	1052	940	810	700	100	80	80	150	22	35	1.5”	DN8	1/2”
12D6	34.9	1052	940	810	700	100	80	80	150	12	22	1.5”	DN8	1/2”
15S6	43.6	1262	1150	1000	800	150	90	80	150	22	35	2”	DN8	1/2”
20S8	58.1	1237	1120	970	800	150	90	110	200	28	42	2”	DN8	1/2”
20D8	58.1	1237	1120	970	800	150	90	110	200	22	28	2”	DN8	1/2”
25S8	72.7	1497	1380	1210	1000	150	100	110	200	28	42	2.5”	DN8	1/2”
25D8	72.7	1497	1380	1210	1000	150	100	110	200	22	35	2.5”	DN8	1/2”
30S8	87.2	1767	1650	1480	1200	150	100	110	200	22	48	2.5”	DN8	1/2”
30D8	87.2	1767	1650	1480	1200	150	100	110	200	22	35	2.5”	DN8	1/2”
40S8	116.3	2027	1910	1690	1400	150	120	110	200	35	54	3”	DN8	1/2”
40D8	116.3	2027	1910	1690	1400	150	120	110	200	28	42	3”	DN8	1/2”



Design condition: Coolants R22, refrigerating medium is fresh water, evaporating temperature is 2℃, condensing temperature 40℃, Inlet and outlet temperature difference 5℃.
The above table is based on R22, if others like R407C≈0.9 R22, R134a≈0.85R22
We offer customized design on materials, dimension, structure, coolants joint, etc.

Triple (Quadruple) System Evaporator (30HP-48HP)

Model YLE	Capacity	Dimension (mm)								Connection (mm)				
	KW	L1	L2	L3	L4	L5	L6	L7	L8	a	b	C1.2	D1.2	e
30T8	87.2	1834	1600	1400	1200	200	100	110	200	22	28	2.5”	DN8	1/2”
36T9	104.6	1834	1600	1360	1200	200	120	110	200	22	35	3”	DN8	1/2”
40Q9	116.3	2034	1800	1560	1300	250	120	110	200	22	28	3”	DN8	1/2”
48Q9	139.5	2394	2160	1920	1500	330	120	110	200	22	35	3”	DN8	1/2”

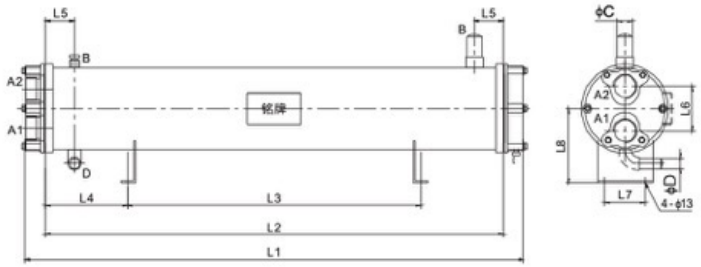


Design condition: Coolants R22, refrigerating medium is fresh water, evaporating temperature is 2℃, condensing temperature 40℃, Inlet and outlet temperature difference 5℃.
The above table is based on R22, if others like R407C≈0.9 R22, R134a≈0.85R22
We offer customized design on materials, dimension, structure, coolants joint, etc.

Shell-Tube Heat Exchanger

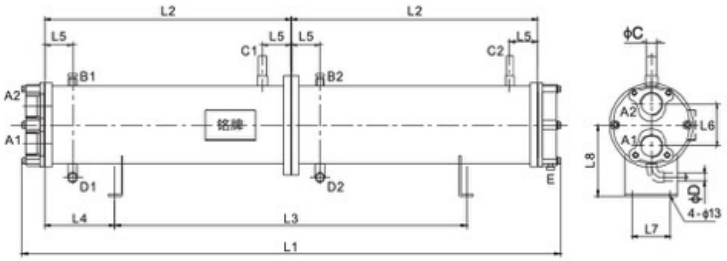
Single System Condenser (3HP-40HP)

Model YLC	Capacity	Dimension (mm)								Connection (mm)				
	KW	L1	L2	L3	L4	L5	L6	L7	L8	A1.2	B	C	D	E
3S5	10.9	597	500	300	100	80	83	80	150	1”	3/8”	16	16	1/4”
5S5	18.2	697	600	350	125	80	83	80	150	1”	3/8”	19	16	1/4”
8S5	29.1	797	700	400	150	80	83	80	150	1”	3/8”	22	19	1/4”
10S6	36.3	808	700	400	150	80	93	80	150	1.5”	3/8”	22	19	1/4”
12S6	43.6	958	850	500	175	80	93	80	150	1.5”	3/8”	22	19	1/4”
15S6	54.5	1158	1050	700	175	80	93	80	150	2”	3/8”	28	22	1/4”
20S8	72.7	1158	1050	700	175	80	119	110	200	2”	3/8”	35	28	1/4”
25S8	90.8	1358	1250	800	225	80	119	110	200	2.5”	3/8”	35	28	1/4”
30S8	109	1358	1250	800	225	80	119	80	200	2.5”	3/8”	42	28	1/4”
40S8	145.3	1758	1650	1100	275	80	119	80	150	2.5”	3/8”	42	28	1/4”



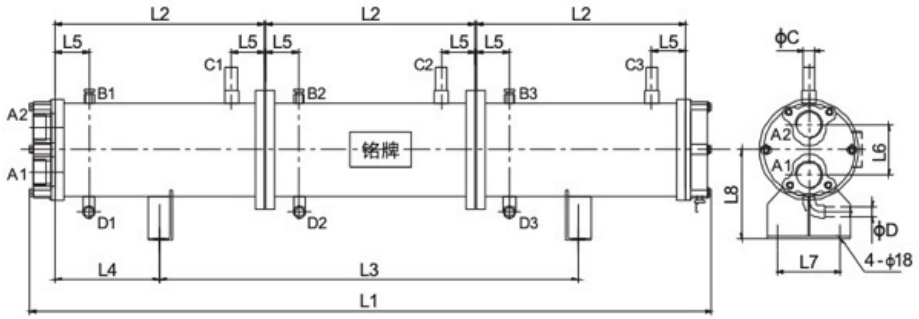
Dual System Condenser (10HP-40HP)

Model YLC	Capacity	Dimension (mm)								Connection (mm)				
	KW	L1	L2	L3	L4	L5	L6	L7	L8	A1.2	B1.2	C1.2	D1.2	E
10D6	36.3	1091	500	600	225	80	93	80	150	1.5”	3/8”	19	16	1/4”
20D8	72.7	1321	600	800	200	80	119	110	200	2”	3/8”	22	19	1/4”
25D8	90.8	1321	600	800	200	80	119	110	200	2.5”	3/8”	22	19	1/4”
30D8	109	1531	700	1000	200	80	119	110	200	2.5”	3/8”	28	22	1/4”
40D8	145.3	1831	850	1300	200	80	119	110	200	2.5”	3/8”	35	28	1/4”

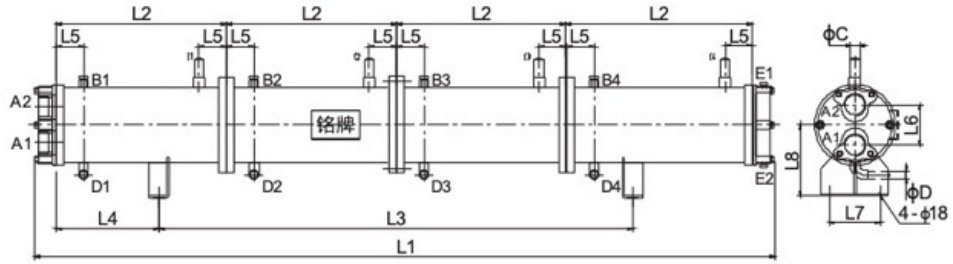


Triple (Quadruple) System Condenser (30HP-40HP)

Model YLC	Capacity	Dimension (mm)								Connection (mm)				
	KW	L1	L2	L3	L4	L5	L6	L7	L8	A1.2	B1-3	C1-3	D1-2	E
30T8	109	1634	500	1000	250	80	119	150	210	2.5”	3/8”	22	19	1/4”
36T8	130.8	1934	600	1200	300	80	119	150	210	2.5”	3/8”	22	19	1/4”



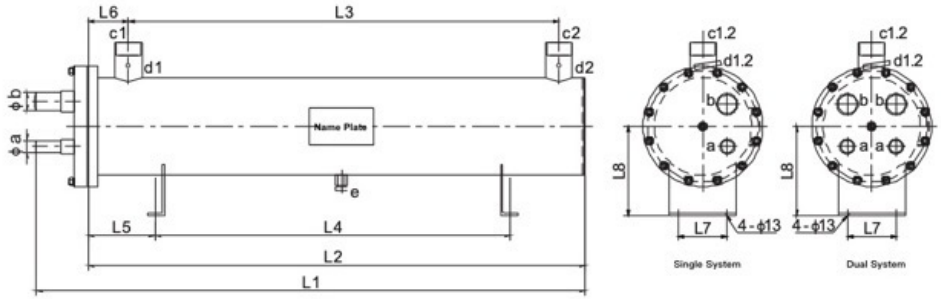
Model YLC	Capacity	Dimension (mm)								Connection (mm)				
	KW	L1	L2	L3	L4	L5	L6	L7	L8	A1.2	B1-3	C1-3	D1-2	E
40Q8	145.3	2186	500	1400	300	80	119	150	210	2.5”	3/8”	22	19	1/4”
48Q8	174.3	2186	500	1400	300	80	119	150	210	2.5”	3/8”	22	19	1/4”



Shell-Tube Heat Exchanger

Single (Dual) System Evaporator (3HP-40HP)

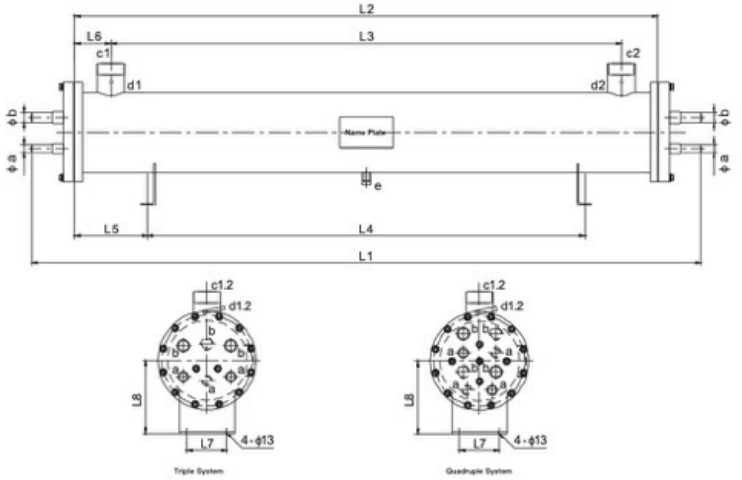
Mode YLE	Capacity	Dimension (mm)								Connection (mm)				
	KW	L1	L2	L3	L4	L5	L6	L7	L8	a	b	C1.2	D1.2	e
3S5	8.7	512	400	280	300	60	70	80	150	16	22	1"	DN8	1/2"
5S5	14.5	732	620	500	400	100	70	80	150	16	22	1"	DN8	1/2"
8S5	23.3	962	850	720	600	100	80	80	150	22	28	1.5"	DN8	1/2"
10S6	29.1	912	800	670	600	100	80	80	150	22	28	1.5"	DN8	1/2"
10D6	29.1	912	800	670	600	100	80	80	150	16	22	1.5"	DN8	1/2"
12S6	34.9	1052	940	810	700	100	80	80	150	22	35	1.5"	DN8	1/2"
12D6	34.9	1052	940	810	700	100	80	80	150	12	22	1.5"	DN8	1/2"
15S6	43.6	1262	1150	1000	800	150	90	80	150	22	35	2"	DN8	1/2"
20S8	58.1	1237	1120	970	800	150	90	110	200	28	42	2"	DN8	1/2"
20D8	58.1	1237	1120	970	800	150	90	110	200	22	28	2"	DN8	1/2"
25S8	72.7	1497	1380	1210	1000	150	100	110	200	28	42	2.5"	DN8	1/2"
25D8	72.7	1497	1380	1210	1000	150	100	110	200	22	35	2.5"	DN8	1/2"
30S8	87.2	1767	1650	1480	1200	150	100	110	200	22	48	2.5"	DN8	1/2"
30D8	87.2	1767	1650	1480	1200	150	100	110	200	22	35	2.5"	DN8	1/2"
40S8	116.3	2027	1910	1690	1400	150	120	110	200	35	54	3"	DN8	1/2"
40D8	116.3	2027	1910	1690	1400	150	120	110	200	28	42	3"	DN8	1/2"



Design condition: Coolants R22, refrigerating medium is fresh water, evaporating temperature is 2℃, condensing temperature 40℃, Inlet and outlet temperature difference 5℃.
The above table is based on R22, if others like R407C≈0.9 R22, R134a≈0.85R22
We offer customized design on materials, dimension, structure, coolants joint, etc.

Triple (Quadruple) System Evaporator (30HP-48HP)

Model YLE	Capacity	Dimension (mm)								Connection (mm)				
	KW	L1	L2	L3	L4	L5	L6	L7	L8	a	b	C1.2	D1.2	e
30T8	87.2	1834	1600	1400	1200	200	100	110	200	22	28	2.5"	DN8	1/2"
36T9	104.6	1834	1600	1360	1200	200	120	110	200	22	35	3"	DN8	1/2"
40Q9	116.3	2034	1800	1560	1300	250	120	110	200	22	28	3"	DN8	1/2"
48Q9	139.5	2394	2160	1920	1500	330	120	110	200	22	35	3"	DN8	1/2"

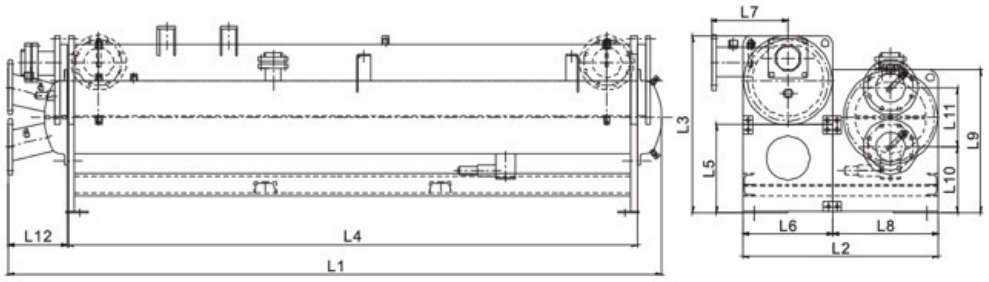


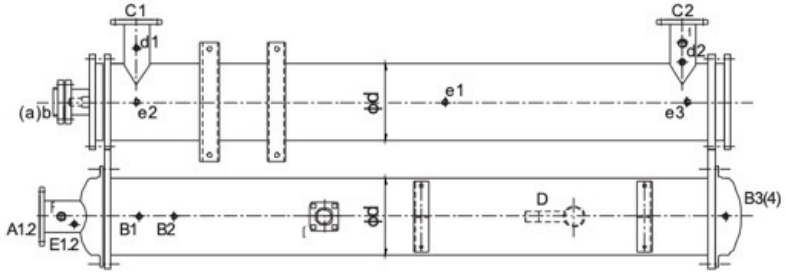
Design condition: Coolants R22, refrigerating medium is fresh water, evaporating temperature is 2℃, condensing temperature 40℃, Inlet and outlet temperature difference 5℃.
The above table is based on R22, if others like R407C≈0.9 R22, R134a≈0.85R22
We offer customized design on materials, dimension, structure, coolants joint, etc.

Shell-Tube Heat Exchanger

Single Screw Compressor (30HP-300HP)

Mode RC2-	Capacity	Dimension (mm)													Connection (mm)					
	KW	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	d	a	b	C1.2	A1.2	C	D
100B	86.4	2034	645	635	1700	350	285	300	360	500	240	200	250	219	1-1/8”	2”	DN80	DN65	1-1/2”	1-1/8”
140B	119.5	2334	645	635	2000	350	285	300	360	500	240	200	250	219	1-1/8”	2”	DN80	DN80	1-1/2”	1-1/8”
180B	156.8	2346	760	710	2000	350	360	300	400	550	260	220	250	273	1-3/8”	2-1/2”	DN80	DN80	1-1/2”	1-3/8”
200B	168.5	2346	760	710	2000	350	360	300	400	550	260	220	250	273	1-3/8”	2-1/2”	DN100	DN80	1-1/2”	1-3/8”
230B	209.3	2546	760	710	2200	350	360	300	400	550	260	220	250	273	1-3/8”	3”	DN100	DN100	2”	1-3/8”
260B	225.4	2746	760	710	2400	350	360	300	400	550	260	220	250	273	1-3/8”	3”	DN125	DN100	2”	1-3/8”
300B	265.6	2586	886	806	2200	400	406	350	480	650	305	260	270	325	1-3/8”	3”	DN125	DN125	2”	1-3/8”
310B	280.6	2586	886	806	2200	400	406	350	480	650	305	260	270	325	1-3/8”	3”	DN125	DN125	2”	1-3/8”
340B	312.4	2786	886	806	2400	400	406	350	480	650	305	260	270	325	1-3/8”	4”	DN125	DN125	2-1/2”	1-5/8”
370B	336.5	3186	886	806	2800	400	406	350	480	650	305	260	270	325	1-3/8”	4”	DN125	DN125	2-1/2”	1-5/8”
410B	365.9	3186	886	806	2800	400	406	350	480	650	305	260	270	325	1-3/8”	4”	DN150	DN125	2-1/2”	1-5/8”
470B	444.3	3186	1010	860	2800	400	406	350	550	700	313	300	270	377	1-5/8”	4”	DN150	DN150	2-1/2”	1-5/8”
510B	464.4	3186	1010	860	2800	400	406	350	550	700	313	300	270	377	1-5/8”	4”	DN150	DN150	3”	1-5/8”
550B	513.6	3186	1010	860	2800	400	406	350	550	700	313	300	270	377	1-5/8”	4”	DN150	DN150	3”	1-5/8”
580B	556.2	3586	1010	860	3200	400	406	350	550	700	313	300	270	377	1-5/8”	4”	DN150	DN150	3”	1-5/8”
620B	577.6	3586	1010	860	3200	400	406	350	550	700	313	300	270	377	1-5/8”	5”	DN150	DN150	3”	1-5/8”
710B	672.6	3626	1120	970	3200	450	520	370	600	750	315	340	300	426	1-5/8”	5”	DN200	DN150	4”	1-5/8”
790B	724	3626	1120	970	3200	450	520	370	600	750	315	340	300	426	1-5/8”	5”	DN200	DN200	4”	1-5/8”
830B	788	3926	1120	970	3500	450	520	370	600	750	315	340	300	426	1-5/8”	5”	DN150	DN200	4”	1-5/8”
930B	889	4226	1120	970	3800	450	520	370	600	750	315	340	300	426	1-5/8”	5”	DN150	DN200	4”	1-5/8”

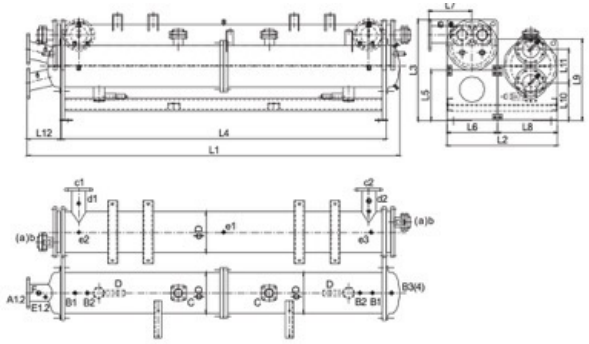




Shell-Tube Heat Exchanger

Double Screw Compressor (60HP-250HP)

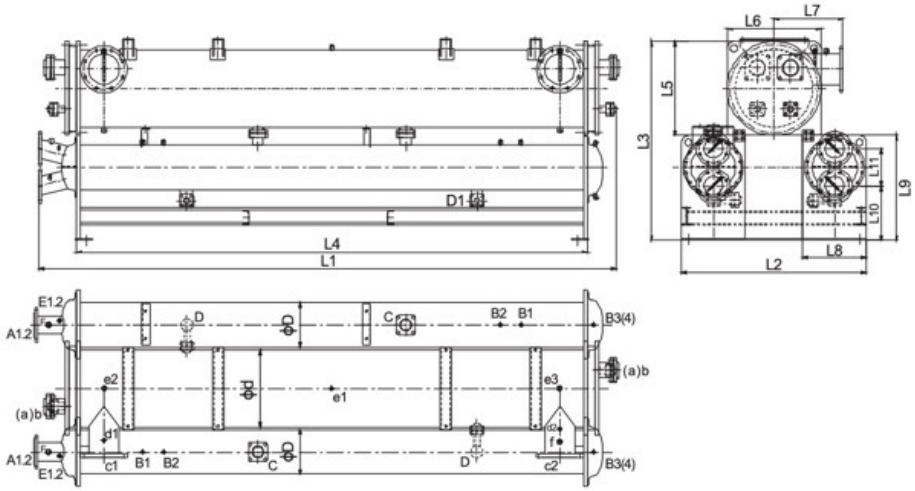
Mode RC2-	Capacity	Dimension (mm)												
	KW	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	D
100B×2	86.4×2	2346	760	710	2000	350	360	300	400	550	260	220	250	273
140B×2	119.5×2	2746	760	710	2400	350	360	300	400	550	260	220	250	273
180B×2	156.8×2	2786	886	806	2400	400	406	350	480	650	305	260	270	325
200B×2	168.5×2	3186	886	806	2800	400	406	350	480	650	305	260	270	325
230B×2	209.3×2	3386	886	806	3000	400	406	350	480	650	305	260	270	325
260B×2	225.4×2	3186	1010	860	2800	400	406	350	550	700	313	300	270	377
300B×2	265.6×2	3186	1010	860	2800	400	406	350	550	700	313	300	270	377
310B×2	280.6×2	3586	1010	860	3200	400	406	350	550	700	313	300	270	377
340B×2	312.4×2	3626	1120	970	3200	450	520	370	600	750	315	340	300	426
370B×2	336.5×2	3626	1120	970	3200	450	520	370	600	750	315	340	300	426
410B×2	365.9×2	3626	1120	970	3200	450	520	370	600	750	315	340	300	426



Mode RC2-	Capacity	Connection (mm)					
	KW	a	b	C1.2	A1.2	C	D
100B×2	86.4×2	1-1/8"	2"	DN80	DN80	1-1/2"	1-1/8"
140B×2	119.5×2	1-1/8"	2"	DN100	DN100	1-1/2"	1-1/8"
180B×2	156.8×2	1-3/8"	2-1/2"	DN125	DN125	1-1/2"	1-3/8"
200B×2	168.5×2	1-3/8"	2-1/2"	DN125	DN125	1-1/2"	1-3/8"
230B×2	209.3×2	1-3/8"	3"	DN125	DN125	2"	1-3/8"
260B×2	225.4×2	1-3/8"	3"	DN150	DN150	2"	1-3/8"
300B×2	265.6×2	1-3/8"	3"	DN150	DN150	2"	1-3/8"
310B×2	280.6×2	1-3/8"	3"	DN150	DN150	2"	1-3/8"
340B×2	312.4×2	1-3/8"	4"	DN150	DN150	2-1/2"	1-5/8"
370B×2	336.5×2	1-3/8"	4"	DN150	DN150	2-1/2"	1-5/8"
410B×2	365.9×2	1-3/8"	4"	DN200	DN150	2-1/2"	1-5/8"
470B×2	444.3×2	1-3/8"	4"	DN200	DN150	2-1/2"	1-5/8"
510B×2	464.4×2	1-5/8"	4"	DN200	DN150	3"	1-5/8"
550B×2	513.6×2	1-5/8"	4"	DN200	DN150	3"	1-5/8"
580B×2	556.2×2	1-5/8"	4"	DN200	DN150	3"	1-5/8"
620B×2	577.6×2	1-5/8"	5"	DN200	DN150	3"	1-5/8"
710B×2	672.6×2	1-5/8"	5"	DN250	DN150	4"	1-5/8"
790B×2	724×2	1-5/8"	5"	DN250	DN150	4"	1-5/8"
830B×2	788×2	1-5/8"	5"	DN250	DN200	4"	1-5/8"
930B×2	889×2	1-5/8"	5"	DN250	DN200	4"	1-5/8"

Double Screw Compressor (250HP-600HP)

Mode RC2-	Capacity	Dimension (mm)												
	KW	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	D
470B×2	444.3×2	3686	1220	1350	3200	600	600	450	460	750	290	260	508	325
510B×2	464.4×2	3686	1220	1350	3200	600	600	450	460	750	290	260	508	325
550B×2	513.6×2	3986	1220	1350	3500	600	600	450	460	750	290	260	508	325
580B×2	556.2×2	3986	1320	1400	3500	600	600	450	500	800	400	300	508	377
620B×2	577.6×2	3986	1320	1400	3500	600	600	450	500	800	400	300	508	377
710B×2	672.6×2	4286	1320	1400	3800	600	600	450	500	800	400	300	508	377
790B×2	724×2	4486	1320	1400	4000	600	600	450	500	800	400	300	508	377
830B×2	788×2	4526	1420	1500	4000	650	650	500	550	850	405	340	560	426
930B×2	889×2	4526	1420	1500	4000	650	650	500	550	850	405	340	560	426

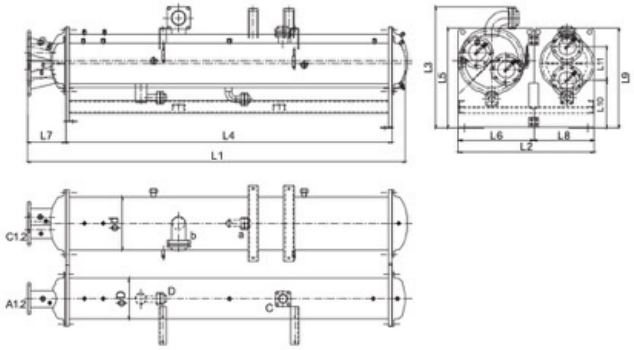


Shell-Tube Heat Exchanger

Single Flooded Screw Compressor (130HP-350HP)

Mode RC2-	Capacity	Dimension (mm)												
	KW	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	d	D
370B	387.2	3211	1080	967	2800	800	600	300	480	800	385	260	426	325
410B	421	3411	1080	967	3000	800	600	300	480	800	385	260	426	325
470B	511.2	3411	1080	967	3000	800	600	300	480	800	390	300	426	377
510B	534.3	3450	1180	1080	3000	900	700	330	480	900	390	300	508	377
550B	591	3650	1180	1080	3200	900	700	330	480	900	390	300	508	377
580B	639.9	3450	1250	1080	3000	900	700	330	550	900	395	340	508	426
620B	664.5	3450	1250	1080	3000	900	700	330	550	900	395	340	508	426
710B	773.9	3450	1250	1080	3000	900	700	330	550	900	395	340	508	426
790B	833	3450	1250	1080	3000	900	700	330	550	900	395	340	508	426
830B	906.6	3650	1250	1080	3200	900	700	330	550	900	395	340	508	426
930B	1022.9	3950	1250	1080	3500	900	700	330	550	900	395	340	508	426

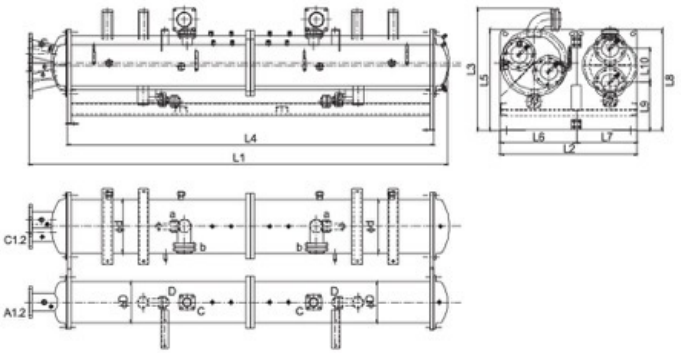
Mode RC2-	Capacity	Connection (mm)					
	KW	a	b	C1.2	A1.2	C	D
370B	387.2	1-3/8"	4"	DN125	DN125	2-1/2"	1-5/8"
410B	421	1-3/8"	4"	DN125	DN125	2-1/2"	1-5/8"
470B	511.2	1-5/8"	4"	DN150	DN150	2-1/2"	1-5/8"
510B	534.3	1-5/8"	4"	DN150	DN150	3"	1-5/8"
550B	591	1-5/8"	4"	DN150	DN150	3"	1-5/8"
580B	639.9	1-5/8"	4"	DN150	DN150	3"	1-5/8"
620B	664.5	1-5/8"	5"	DN150	DN150	3"	1-5/8"
710B	773.9	1-5/8"	5"	DN150	DN150	4"	1-5/8"
79-0B	833	1-5/8"	5"	DN200	DN200	4"	1-5/8"
830B	906.6	1-5/8"	5"	DN200	DN200	4"	1-5/8"
930B	1022.9	1-5/8"	5"	DN200	DN200	4"	1-5/8"



Double Flooded Screw Compressor (260HP-700HP)

Mode RC2-	Capacity	Dimension (mm)											
	KW	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	d	D
370B×2	387.2×2	4450	1250	1080	4000	900	700	550	900	395	340	508	426
410B×2	421×2	4450	1250	1080	4000	900	700	550	900	395	340	508	426
470B×2	511.2×2	4450	1250	1080	4000	900	700	550	900	395	340	508	426
510B×2	534.3×2	4450	1250	1080	4000	900	700	550	900	395	340	508	426
550B×2	591×2	4450	1250	1080	4000	900	700	550	900	395	340	508	426
580B×2	639.9×2	4495	1450	1120	4000	950	750	700	950	435	340	560	508
620B×2	664.5×2	4495	1450	1120	4000	950	750	700	950	435	340	560	508
710B×2	773.9×2	4545	1450	1120	4000	1050	850	750	1050	435	400	660	560
790B×2	833×2	4545	1450	1120	4000	1050	850	750	1050	435	400	660	560
830B×2	906.6×2	4580	1450	1120	4000	1100	900	800	1100	460	400	710	610
930B×2	1022.9×2	4580	1450	1120	4000	1100	900	800	1100	460	400	710	610

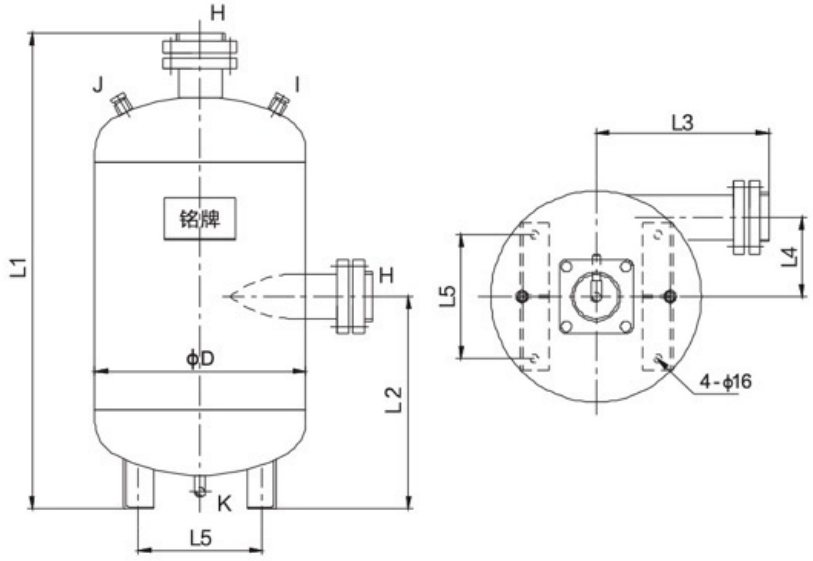
Mode RC2-	Capacity	Connection (mm)					
	KW	a	b	C1.2	A1.2	C	D
370B×2	387.2×2	1-3/8"	4"	DN150	DN150	2-1/2"	1-5/8"
410B×2	421×2	1-3/8"	4"	DN150	DN150	2-1/2"	1-5/8"
470B×2	511.2×2	1-5/8"	4"	DN200	DN200	2-1/2"	1-5/8"
510B×2	534.3×2	1-5/8"	4"	DN200	DN200	3"	1-5/8"
550B×2	591×2	1-5/8"	4"	DN200	DN200	3"	1-5/8"
580B×2	639.9×2	1-5/8"	4"	DN200	DN200	3"	1-5/8"
620B×2	664.5×2	1-5/8"	5"	DN200	DN200	3"	1-5/8"
710B×2	773.9×2	1-5/8"	5"	DN250	DN250	4"	1-5/8"
790B×2	833×2	1-5/8"	5"	DN250	DN250	4"	1-5/8"
830B×2	906.6×2	1-5/8"	5"	DN250	DN250	4"	1-5/8"
930B×2	1022.9×2	1-5/8"	5"	DN250	DN250	4"	1-5/8"



Shell-Tube Heat Exchanger

Oil-Gas Separator(15L – 210L)

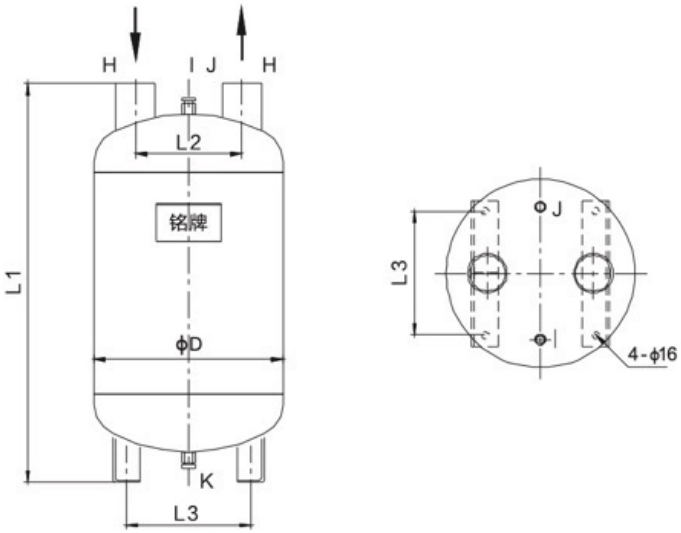
Mode YLOS	Volume	Dimension (mm)						Connection (mm)			
	L	L1	L2	L3	L4	L5	D	H	I	J	K
15S8	15	700	280	210	80	120	219	1-1/2”	3/8”	1/2”	ϕ16
25S10	25	720	280	230	105	150	273	1-1/2”	3/8”	1/2”	ϕ16
40S12	40	800	325	260	120	200	325	2”	3/8”	1/2”	ϕ16
60S15	60	900	400	300	140	250	377	2-1/2”	3/8”	1/2”	ϕ16
90S16	90	960	450	320	160	280	426	3”	3/8”	1/2”	ϕ16
130S20	130	1035	450	350	180	350	508	4”	3/8”	1/2”	ϕ16
170S22	170	1045	450	380	210	350	560	4”	3/8”	1/2”	ϕ16
210S24	210	1075	450	400	235	450	610	4”	3/8”	1/2”	ϕ16



Design condition: Coolants R22, R134a, R407C, R404A, R507
This product is used for Flooded Screw Compressor secondary external oil and water separation, also can use for cryogenic refrigerating unit.

Gas-Liquid Separator(15L – 210L)

Mode YLGS	Volume	Dimension (mm)					Connection (mm)			
	L	L1	L2	L3	D	H	I	J	K
15S8	15	640	120	120	219	2“	3/8”	1/2”	1/2”
25S10	25	700	160	150	273	2”	3/8”	1/2”	1/2”
40S12	40	750	200	200	325	2.5”	3/8”	1/2”	1/2”
60S15	60	840	240	250	377	3”	3/8”	1/2”	1/2”
90S16	90	900	240	280	426	4”	3/8”	1/2”	1/2”
130S20	130	950	320	350	508	4”	3/8”	1/2”	1/2”
170S22	170	960	340	350	560	5”	3/8”	1/2”	1/2”
210S24	210	1000	380	450	610	5”	3/8”	1/2”	1/2”

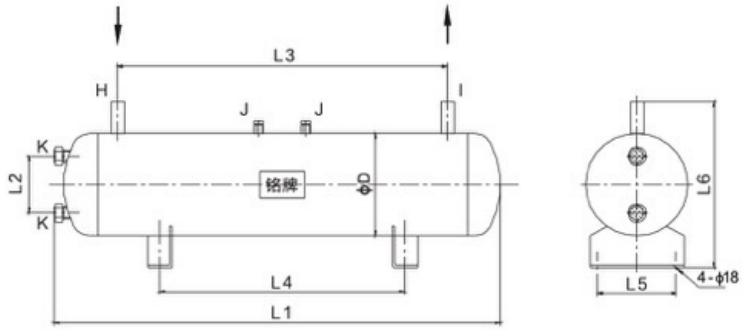


Design condition: Coolants R22, R134a, R407C, R404A, R507
The inlet & outlet joint is welded, also can chose flange connector.

Shell-Tube Heat Exchanger

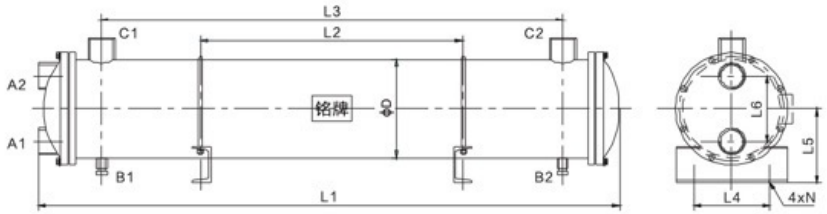
Reservoir(40L – 800L)

Mode YLR	Volume	Dimension (mm)							Connection (mm)			
	L	L1	L2	L3	L4	L5	L6	D	H	I	J	K
40S8	40	1280	130	950	700	150	419	219	1-1/8"	7/8"	1/2"	3/4"
60S10	60	1210	160	850	700	200	473	273	1-3/8"	1-1/8"	1/2"	3/4"
80S10	80	1560	160	1200	1000	200	473	273	1-3/8"	1-1/8"	1/2"	3/4"
100S12	100	1480	190	1100	900	250	525	325	1-5/8"	1-3/8"	1/2"	3/4"
150S15	150	1610	220	1100	900	300	577	377	2-1/8"	1-5/8"	1/2"	3/4"
200S16	200	1630	250	1200	1000	350	626	426	2-5/8"	2-1/8"	1/2"	3/4"
250S16	250	2080	250	1650	1400	350	626	426	2-5/8"	2-1/8"	1/2"	3/4"
300S17	300	2100	310	1650	1400	350	657	457	3-1/8"	2-5/8"	1/2"	3/4"
500S22	500	2250	360	1700	1600	500	760	560	3-1/8"	2-5/8"	1/2"	3/4"
800S28	800	2250	400	1650	1400	650	910	710	3-1/8"	2-5/8"	1/2"	3/4"



Design condition: Coolants R22, R134a, R407C, R404A, R507
The inlet & outlet joint is welded, also can chose flange connector.

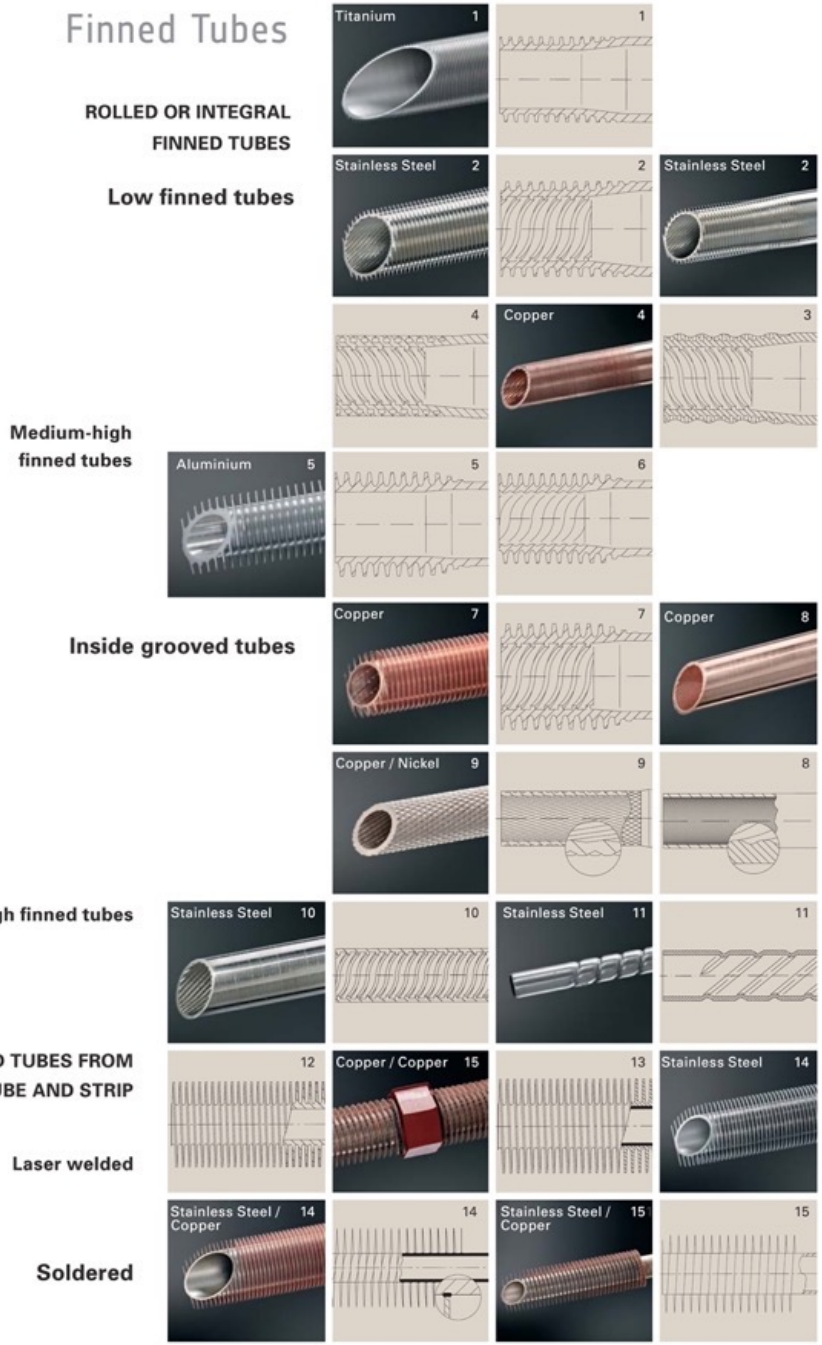
Design condition: Coolants R22, R134a, R407C, R404A, R507
The inlet & outlet joint is welded, also can chose flange connector



Oil Cooler

Mode YL	Area	Dimension (mm)							Connection (mm)			
	㎡	L1	L2	L3	L4	L5	L6	D	A1.2	B1.2	C1.2	N
GLC2-	1.3	560	225	375	145	93	83	114	1"	3/8"	1"	11
GLC2-	1.7	690	350	500								
GLC2-	2.1	820	485	635								
GLC2-	2.6	960	630	775								
GLC2-	3.0	1110	780	925								
GLC2-	3.5	1270	935	1085								
GLC3-	4.0	840	380	570	170	158	93	168	1-1/4"	3/8"	1-1/2"	15
GLC3-	5.0	990	530	720								
GLC3-	6.0	1140	680	870								
GLC3-	7.0	1310	850	1040								
GLC3-	8.0	1470	1010	1200	170	158	93	168	1-1/2"	3/8"	2"	15
GLC3-	9.0	1630	1170	1360								
GLC3-	10	1800	1340	1530								
GLC3-	11	1980	1520	1710								
GLC4-	13	1340	745	985	270	208	119	219	2"	3/4"	2"	19
GLC4-	15	1500	905	1145								
GLC4-	17	1660	1065	1305								
GLC4-	19	1830	1235	1475								
GLC4-	21	2010	1415	1655	270	208	119	219	2"	3/4"	2"	19
GLC4-	23	2180	1585	1825								
GLC4-	25	2360	1765	2005								
GLC4-	27	2530	1935	2175								
GLC5-	30	1932	1320	1570	280	234	148	273	2-1/2"	3/4"	2"	23
GLC5-	34	2152	1540	1790								
GLC5-	37	2322	1710	1960								
GLC5-	41	2542	1930	2180								
GLC5-	44	2712	2100	2350								
GLC5-	47	2872	2260	2510								
GLC5-	51	3092	2480	2730								
GLC5-	54	3262	2650	2900								
GLC6-	55	2272	1590	1860	300	284	200	325	3"	3/4"	2-1/2"	23
GLC6-	60	2452	1770	2040								
GLC6-	65	2632	1850	2220								
GLC6-	70	2812	2130	2400								
GLC6-	75	2992	2301	2580								
GLC6-	80	3172	2490	2760								
GLC6-	85	3352	2670	2940								
GLC6-	90	3532	2850	3120								

Finned Tube


Finned Tubes
ROLLED OR INTEGRAL FINNED TUBES
Low finned tubes
Medium-high finned tubes
Inside grooved tubes
FINNED TUBES FROM TUBE AND STRIP
Laser welded
Soldered
Titanium 1
Stainless Steel 2
Copper 4
Aluminium 5
Copper 7
Copper 8
Copper / Nickel 9
Stainless Steel 10
Stainless Steel 11
Copper / Copper 15
Stainless Steel 14
Stainless Steel / Copper 14
Stainless Steel / Copper 15

Extruded Finned Tube

Steel-Aluminum Composite Finned Tube

The processing technology of cold rolled finned tube of steel and aluminum is made from aluminum tube and steel tube into bimetallic composite tube, and then the finned tube is formed after the mechanical cold rolled tube.

Based on the physical characteristics of aluminum tube, the tube with steel tube as the core is made into a finned tube which is closely combined with the cold rolled aluminum fin.

The composite finned tube has the following characteristics:

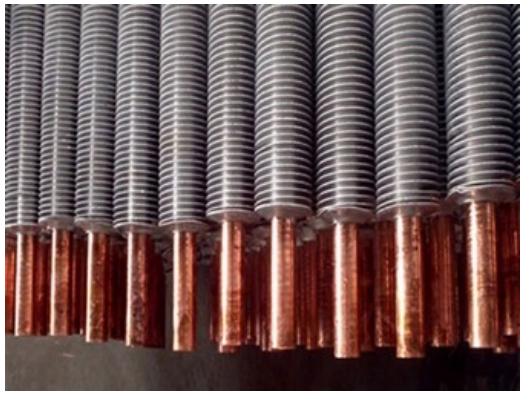
1. High heat transfer performance, low contact resistance;
2. The fin has a large contact area with the tube, which is close and reliable;
3. Good corrosion resistance and stable long-term service performance;
4. The fin has good rigidity and is not easy to deform.

It is widely used in steel, petroleum, chemical, machinery, shipbuilding, power station, hospital and food industries.

Pure Aluminum Composite Finned Tube

Single metal composite finned tube is made of aluminum tube by the whole rolling, called aluminum rolled finned tube, no contact thermal resistance, high strength, heat resistance and mechanical vibration, thermal expansion performance is good, and has a considerable expansion of heat transfer surface.

Copper-Aluminum Composite Finned Tube



Copper aluminum composite finned tube is made of copper and aluminum composite tube after being compounded and then rolled. It has the characteristics pf close combination, small thermal resistance, good heat transfer performance, high strength, small flow loss, strong corrosion resistance, low deformation and long working life under long-term cold and thermal conditions. The integral rolling fin is smooth without burr, wrinkle and easy to clean. When wet colling is carried out in heating and air conditioning engineering, condensation water on the surface of fin is easy to be removed, and it is not easy to form dust and scale in coax heating and other heat exchange occasions.

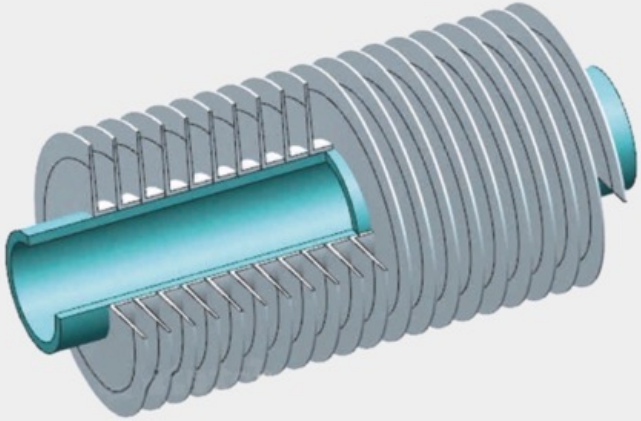
Pure Copper Composite Finned Tube

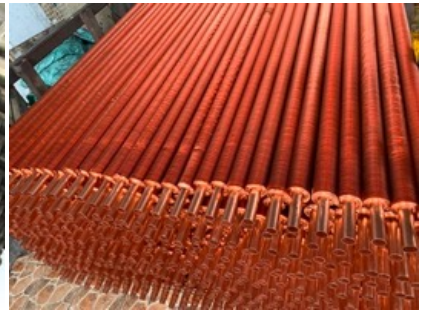
Red copper finned tube is a heat transfer element. In order to improve the heat transfer efficiency, usually add fins to the surface of the heat exchange tube to increase the surface area (or internal surface area) of the heat exchange tube, so as to achieve the purpose of improving the heat transfer efficiency. The overall fin tube has no contact thermal resistance, good heat transfer performance, high strength, thermal vibration and mechanical vibration resistance, good thermal expansion performance.

Spiral Winding Finned Tube

L-Type Spiral Winding Finned Tube

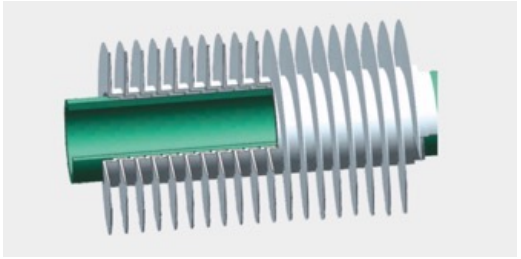
The trapezoidal section formed by the calendaring of l-type finned tube is consistent with the heat flow density distribution, and the tube plates are closely combined with high thermal efficiency, eliminating the contact thermal resistance of the tandem finned tube due to the gap between the tube plates. Operating temperature: 230℃ features: high production efficiency, even blade spacing, good heat transfer, high fin ratio, the base tube can be protected from air erosion. Application: mainly used in petrochemical, power, paper, tobacco, building heating and other industries air cooler, air heater and food industry plant protein powder, starch and other spray drying system air heater.





LL-Type Spiral Winding Finned Tube

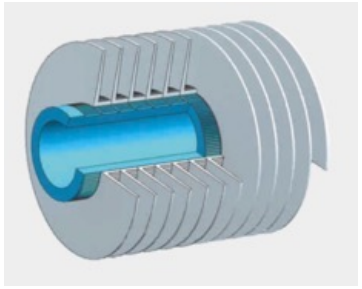
LL type winding finned tube: under the l-type foundation, the fin root completely covers the outer surface of the base tube, which can strengthen the contact surface and increase the heat exchange effect. Maximum operating temperature: 170℃.



KL-Type Spiral Winding Finned Tube

KL type finned tube is also known as knurled finned tube. It is used to roll the pattern on the base tube before winding the fin, or to add a blade on the winding machine. Knurling is used on the base tube, and the blade behind is used for winding.

Applicable scope and features:
A. Maximum operating temperature ≤250°C
B. Maximum operating pressure ≤ 3.2mpa
C. Advantages:
1. High heat transfer performance, small contact resistance.
2. The fin has a large contact area with the tube, which makes it close and reliable.
3. Good resistance to atmospheric corrosion, stable long-term performance



Embedded Finned Tube

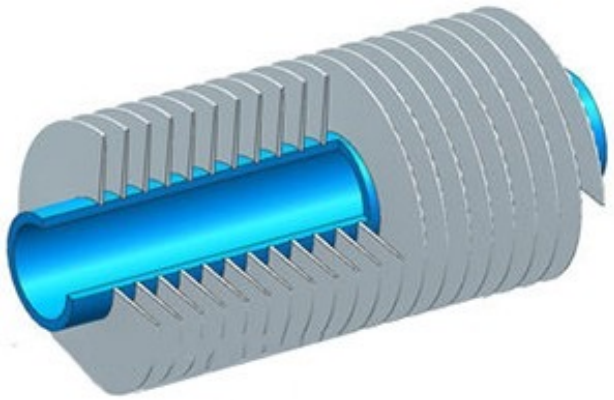
Embedded Finned Tube

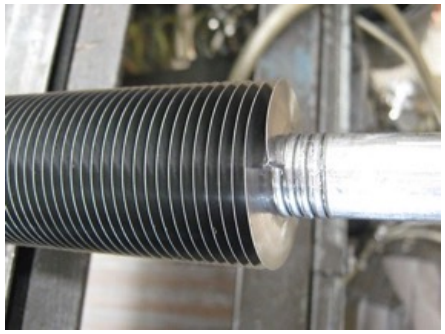
Processing technology: the fins are tightly embedded in the outer surface of the mechanically slotted base tube.

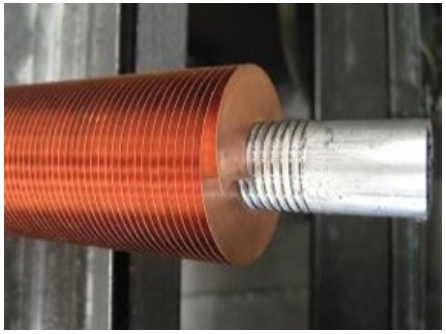
Base pipe material: carbon steel, alloy steel, stainless steel, duplex steel, copper pipe.
Fins: aluminum 1060, aluminum 1100, T2 copper
Application: air cooler, heat exchanger, air heater, economizer

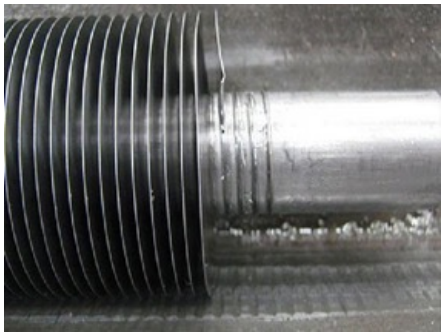
Application fields:

- petroleum, chemical and petrochemical industries
- natural gas treatment
- Steel industry: blast furnace and converter system
- power generation: steam turbine exhaust gas condensation, condensation water contact circulation cooling condensation, fossil and nuclear power plants air conditioning (freon, ammonia, propane)
- waste incineration equipment
- compressor cooler, etc.









Corrugated Heat Exchanger Tube

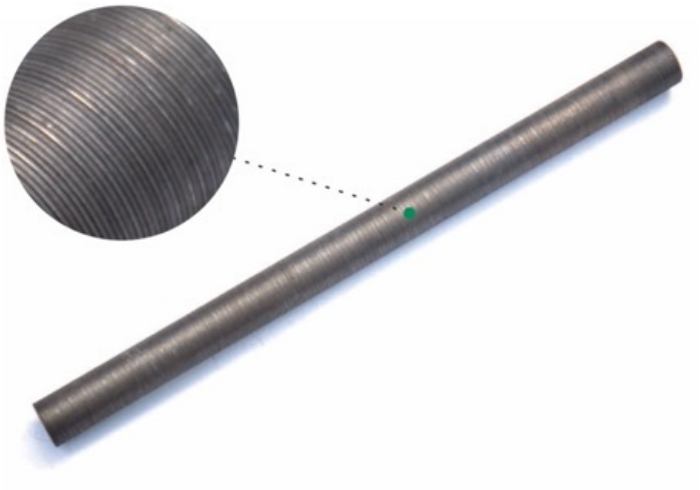
Low Finned Threaded Tube

Principle and characteristics of threaded low - toothed finned tube

1, the principle of
Low thread finned tube is a kind of high efficiency heat exchange tube which is formed on its outer surface by rolling.
The reinforcement of this tube type is outside the tube. On the one hand, the reinforcing effect of the medium is reflected in the increase of heat transfer area of the threaded fin. On the other hand, when the shell passes through the surface of the threaded tube, the surface threaded fins have a segmentation effect on the laminar flow edge layer, which reduces the thickness of the boundary layer. Moreover, the turbulence formed on the surface is stronger than that of the light tube, further reducing the thickness of the boundary layer. The result of combined action makes the tube have high heat transfer capacity. When this type of tube is used for evaporation, it can increase the number of bubbles formed on the unit surface and improve the boiling heat transfer capacity. When used for condensation, the threaded fin is very conducive to the dripping of condensate at the lower end of the tube, so that the liquid film is reduced, the thermal resistance is reduced, and the condensation heat transfer efficiency is improved.

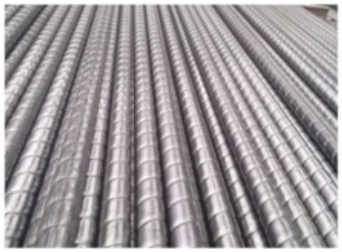
2, the characteristics of
(1) low processing costs;
The essay is widely applicable. It can strengthen the evaporation, condensation, gaseous heat transfer and liquid heat transfer of shell media.

Application:
As long as the medium on the shell side is clean, free from corrosion and scale formation, low-threaded finned tube can be used as a heat exchange element to form a low-threaded finned tube type efficient heat exchanger



Low Finned Threaded Tube

Function of threaded pipe:
1.In boiler application, after heat exchange and flow resistance optimization, the heat transfer of a threaded pipe is equivalent to 1.7-1.8 ordinary pipe of the same size. This not only makes the number of smoke pipe significantly reduced, but also can reduce the diameter of the pot shell, thus, the pressure component steel consumption significantly reduced, save the steel, reduce the cost.
2. In the application of air conditioning and refrigeration industry, compared with the general smooth light tube, the heat transfer surface area of the light tube is more than 1.5-2.0, which greatly improves the flow mode of coolant and enhances the heat transfer effect of boiling and condensation inside the tube. The pressure loss of the refrigerant is reduced by more than 50% through the internal screw. Manufacturing needs to expand the pipe, welding and other processing technology is the same as the ordinary pipe. Make the air conditioner small and light, compared with the light tube, the weight of the tube is saved about one third. Operation saves electricity and costs.
3. In the application of heat exchange equipment, the steel tube or stainless steel tube is rolled into shape at one time through the machine tool, and the scale on the surface of the spiral tube is in spiral shape. The change of temperature during the operation of the equipment makes the tube expand and contract, so the scale layer can fall off by itself. The smooth tube scale layer is cylindrical, without any self - release force. It has been widely used in power plant condenser and boiler auxiliary heat exchange system, and is an ideal choice to replace light pipe and copper pipe.



Corrugated Heat Exchanger Tube

T-Shaped Finned Tube

1. How it works
T-type finned tube heat exchanger is a kind of high efficiency heat exchanger formed by the rolling process of the light tube. The structure features a series of spiral loop t-shaped tunnels on the outer surface of the tube. When the medium outside the tube is heated, a series of bubble nuclei are formed in the tunnel. As the medium inside the tunnel is heated all around, the bubble nuclei rapidly expand and fill the inner cavity. Continuous heating rapidly increases the pressure inside the bubble, so that the bubbles are rapidly ejected from the thin cracks on the surface of the tube. When the bubble is ejected, it has a large scouring force and generates a certain local negative pressure, which makes the surrounding cold liquid pour into the t-shaped tunnel and form a continuous boiling. The heat carried away by this boiling method per unit surface area in a unit of time is much larger than that of the light tube, so this tube type has a higher boiling heat transfer capacity.

2, the characteristics of
(1) good heat transfer effect. In R113, the boiling heat transfer coefficient of T tube is 1.6-3.3 times higher than that of light tube.

Conventional light tube heat exchanger, only when the temperature of the hot medium is higher than the boiling point of the cold medium or the bubble point of 12℃-15℃, the cold medium will bubble and boil. The t-type finned tube heat exchanger only needs the temperature difference between 2℃ and 4℃, the cold medium can boil, and the bubble is fine, continuous and fast, forming a unique advantage compared with the light tube.

The single tube experiment with freon 11 as medium shows that the boiling heat coefficient of the t-tube can reach 10 times of the light tube. The total heat transfer coefficient of small tube bundle with liquid ammonia as the medium was 2.2 times that of the light tube. The reboiler industrial calibration of the C3 and C4 hydrocarbon separation towers shows that the total heat transfer coefficient of the t-tube is 50% higher than that of the smooth tube at low load and 99% higher at high load.

It is cheaper than aluminum porous surface heat transfer tubes.

Because the gas-liquid disturbance inside the tunnel is very fierce and the gas is ejected at a high speed along the T seam, it is not easy to form scale inside the t-groove or on the outer surface of the tube, which ensures that the equipment can be used for a long time and the heat transfer effect will not be affected by the scale.

3. Application situation
As long as the shell side medium is clean, no solid particles, no colloid, t-type finned tube can be used as a heat exchange element to form a t-type finned tube heat exchanger with high efficiency, so as to improve the shell side boiling heat transfer effect.

Wave Tube & Bamboo Tube

The wave joint heat exchange pipe is a new type of high efficiency heat exchange pipe, which has the advantages of strong corrosion resistance, longer service life, no pitting corrosion, low price and so on.

Bellows tube heat exchanger of stainless steel bellows tube, due to high quality of stainless steel materials, corrosion itself, more major is special inside and outside the bellows tube wave and turbulent medium continuously scouring, internal and external surfaces of the heat exchange tube dirt deposited in the surface very hard, even if the scale, the section pipe is a kind of flexible components, wavelengths, in the process of work by the effect of temperature difference, the curvature of the bellows tube parts constantly change, although the deformation curvature change is not very big, but dirt and the linear expansion coefficient of metal bellows tube vary widely, therefore between dirt and bellows tube surface will produce a large force of pulled off, Enough to make the scale off to achieve automatic cleaning, automatic descaling, especially this is the row tube and other heat exchangers can not be compared, the stress distribution is uniform, strong corrosion resistance.

Because of the use of ultra-thin wall stainless steel wave tube, on the one hand to improve the service life of the product, but also greatly reduce the weight of the product, save the material, but also because of the reduction of the operation and maintenance costs, the reduction of the floor area, so that the performance of the product price ratio significantly increased, the economic benefits are obvious.

Welded Finned Tube

Spiral High Frequency Welded Finned Tube

High frequency welded spiral finned tube is a kind of high efficiency heat transfer element with spiral finned tube. The extended surface (fin) can be solid or serrated, with a heat transfer area several dozen times larger than that of a bare tube.

Why use finned tubes

- Improve heat transfer efficiency in efficient space.
- Reduces installation space on required heat transfer surfaces
- Reduce the cost of the equipment, and have a high operational reliability.
- The pressure drop on the side of the tube is reduced and the operation cost is reduced.
- The stiffness of steel tube is improved, and the seismic performance of steel tube is improved.
- Enhance heat transfer, reduce flow resistance and metal consumption

Manufacturing process

The steel fins are spiral wound and HFERW (high frequency resistance welding) is continuously welded to the steel tube. High frequency current is introduced into the workpiece, the welding contact surface is thermally melted or semi-melted by the resistance, and then appropriate pressure is applied on the welding contact surface to complete the finned tube welding. This produces a uniform, clean and continuous finned tube with no additional welding material to combine very efficient heat flow and corrosion resistance.

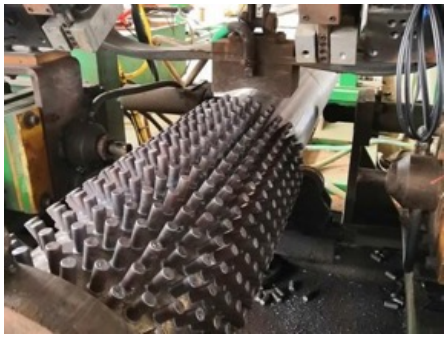
High frequency welded spiral finned tube is one of the spiral finned tubes widely used at present, which is widely used in power, metallurgy, waste heat recovery of cement industry and petrochemical industry.

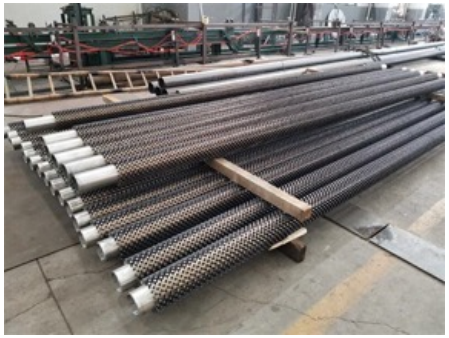
High frequency welded finned tube features

1. Due to the fast welding speed and strong self-cooling effect of welding parts, not only the heat-affected area is small, but also it is not easy to oxidize, so the microstructure and performance of welding seams are very good.
2. anti-corrosion performance, wear resistance, low contact thermal resistance, high stability, anti - ash ability.
3. Large heat exchange area.

Studded Tube

Studded tube is also known as nail-shaped ribbed tube. In the petrochemical industry, the nail-head tube is widely used. Especially in the convection chamber of tubular heating furnace, in order to enhance the heat transfer effect outside the tube, the nailing head tube is often used in the heat transfer element.





Welded Finned Tube

Serrated Spiral High Frequency Welded Finned Tube

High frequency welded spiral fin tube is a new type of heat exchange material which is wear-resistant and efficient.

It adopts the national patent technology to make use of the high-frequency welding production process, takes the high-frequency power source as the heat source, heats the steel belt and steel pipe at the same time, and makes them fuse and weld together into a whole, which has the characteristics of high heat exchange efficiency, large heat dissipation area, long service life, wide temperature range and high pressure bearing. It is widely used in waste heat recovery, petrochemical industry, power plant boiler, economizer, passenger car, industrial and civil construction, heating, refrigeration, medicine drying, wood drying, grain drying system and other industries.

Advantages of high frequency welding of spiral finned tubes

1. The installation is simple and economical, the maximum length of high frequency welding spiral finned tube can reach 6 meters, reducing the connection point, making the installation more economical and fast, and reducing the probability of water leakage at the connection point.

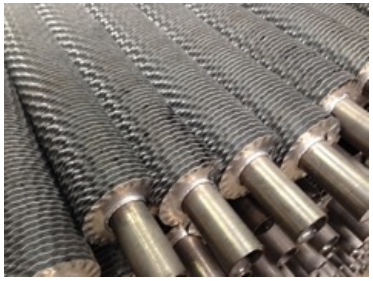
2. Simple maintenance, after the installation of high frequency welding spiral fin tube, the basic need for maintenance.

3. High efficiency, high frequency welding spiral finned tube is the finned tube and steel pipe wrapped in full contact welding, heat dissipation area is more than 8 times of the light tube, internal more smooth, internal water resistance is small.

4. Long service life, fin and pipe combined with high mechanical strength, tensile strength of more than 200Mpa, all the tube inside and outside of hot-dip galvanized treatment.

Weldable fin material: carbon steel, corrosion resistant steel, stainless steel, alloy steel.

Weldable fin form: solid teeth, open teeth.



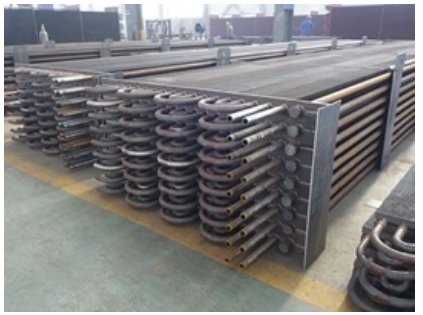
H-Type & HH-Type Finned Tube

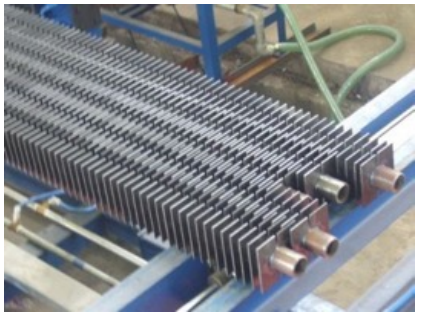
1. The fin is divided into two symmetrical half pieces, and the tube wall is pressed from both sides. Resistance welding is used to weld the tube wall, leaving certain gaps in the middle;

2. Two round tubes can share a set of fins, called double tube h-fin, or just put a round tube in the middle, called single tube h-fin.

3. The heat exchanger composed of h-type finned tube is arranged closely and the tube bundle is arranged in a straight line.

The influence of h-shaped finned structure on ash accumulation and wear: the gap between the two pieces makes use of the flow of flue gas and the erosion of ash, because there is a high flow rate of flue gas in the gap; The pipes are arranged in a straight line with little resistance and little wear. H-type fins can effectively utilize the flow space and maintain a large fin area and finning ratio. The thickness of fin can be chosen according to the need of wear resistance. The fins are parallel to each other and independent, without the influence of spiral Angle, thus facilitating ash removal.





Other Finned Tube

Cold Winding Finned Tube

Round plate to press material cent, compared with common carbon steel or stainless steel round aluminum, carbon steel round carbon steel, stainless steel round stainless steel pieces, around the segment from around 4 mm, strip steel, aluminum, carbon steel, stainless steel sheet) commonly used size has a high 10 mm, 12 mm, 15 mm specifications, such as 0.35 mm thick, and so on, from 4 mm, 5 mm, 6 mm, etc., can also be customized according to customer requirements.

Oval Cross Finned Tube

The finned tube is connected to the tube piece by piece. Because the pipe is often not round (especially welded steel pipe), there is inevitably a gap between the fin the the tube wall. If there is a gap, there is a gap thermal resistance. For the reason, the following measures are often adopted: resistance welding method, dip coating method, contact welding method and tube expansion method.
The utility model provides a technology for making the tube and the fin close together and improving the heat dissipation. It prefabricates the inclined edge hole on the string piece to reserve the interference material, and then retracts it to make the pipe and sheet form the extrusion of contour peak and contour valley. It can realize the seamless combination under the normal temperature condition without welding, sticking and filling other materials. So as to make it become a high-efficiency heat sink. In radiator, heat exchanger, shower water heater and so on, this technology can save tin and chemical adhesive.

Longitudinal Finned Tube

This welded structure can be used for virtually any heat transfer application. The choice between longitudinal finned tube and spiral finned tube seems to depend mainly on geometric factors. For example, some heater structures consist of finned tubes inserted into other tubes -- longitudinal finned tubes are an obvious choice for such applications. In other cases, users prefer the longitudinal finned tube installation, where the tube will be in a vertical direction - the finned direction facilitates fluid drainage on one side of the finned tube. Longitudinal finned structures are most commonly used in shell and tube applications, such as in double-tube and multi-tube heat exchangers, where the longitudinal finned tube is telescopic in the hole of a larger tube shell. Heat is transferred between the fluid flowing through the finned tube hole and the fluid flowing through the shell hole. The fluid flowing through the shell hole is forced to flow between the longitudinal fins. In this case, the spiral fin prevents the flow of the fluid, rather than allowing it to flow between the fins.

Why use finned tubes

- Improve heat transfer efficiency in efficient space.
- Reduces installation space on required heat transfer surfaces
- Reduce the cost of the equipment, and have a high operational reliability.
- The pressure drop on the side of the tube is reduced and the operation cost is reduced.
- The stiffness of steel tube is improved, and the seismic performance of steel tube is improved.
- Enhance heat transfer, reduce flow resistance and metal consumption

Manufacturing process

Longitudinal finned tubes are produced by welding the fins with resistance along the length of the tube. The fins first form a u-shaped channel, allowing each of the u-shaped legs to form a fin. The channel is cut to the appropriate length and then welded into place along the length of the tube and resistance. The channels are a pair of welded, polar opposites, so the number of fins specified must be a multiple of four.

For a given tube or tube size, the desired heat transfer surface area per tube unit length can be obtained by specifying the appropriate fin height and number of fins. The maximum number of fins depends on the outer diameter of the tube - the larger OD tube can accommodate more fins.