SANHUA

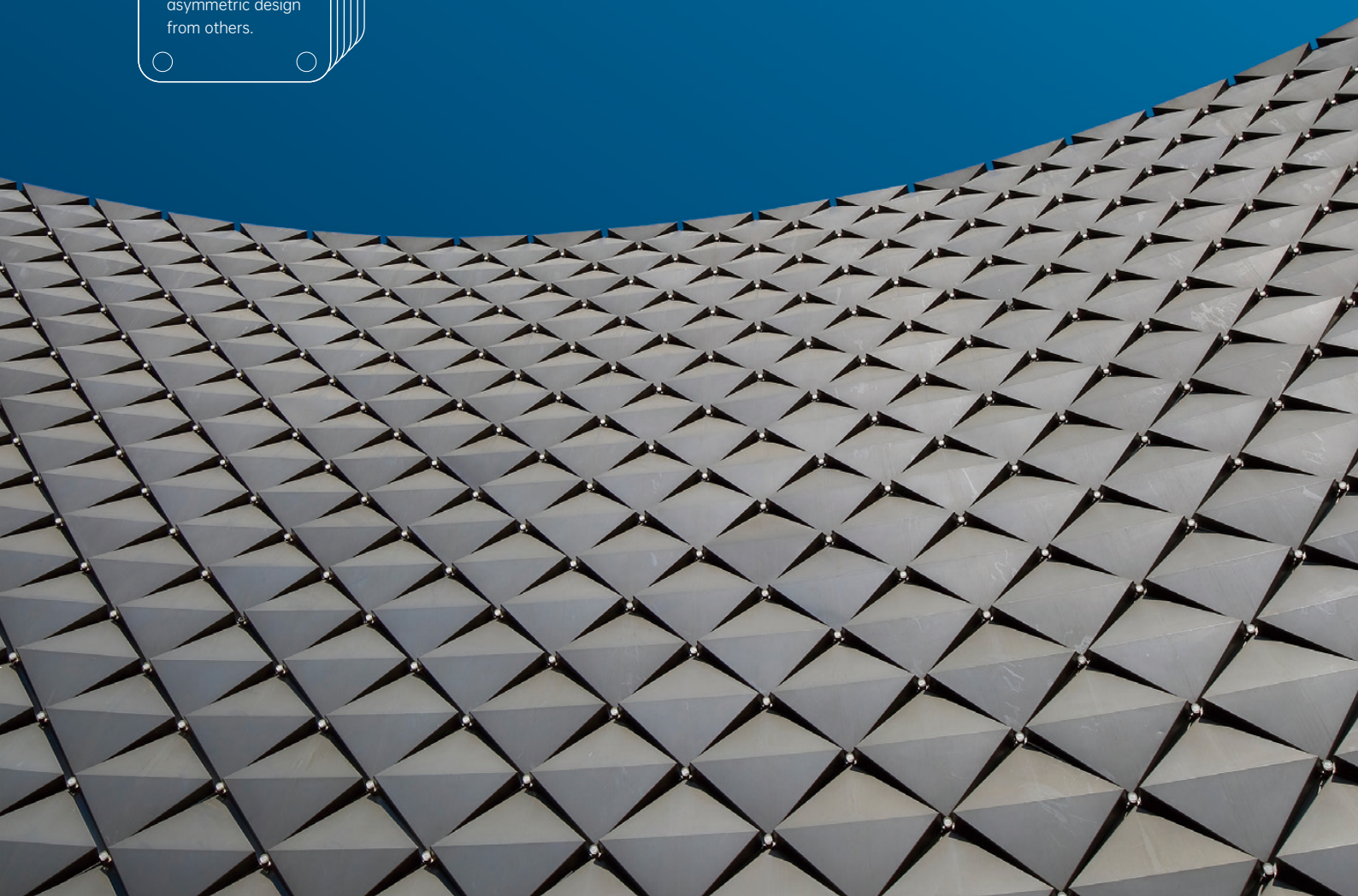
Stainless Steel
Brazed Plate Heat Exchanger

A magnificent turn into new chapter

in average

25%

SANHUA's patented asymmetric design has much lower pressure drop on secondary side even compared to asymmetric design from others.



innovating
TOGETHER

Introduction

With the carbon neutralization goal, it is the top priority of most industries to apply renewable energies and technologies to save energies and reduce the emissions.
In the field of HVAC&R, such as heat pump, electric bus A/C and energy storage battery cooling are typical applications where renewable energies are used and inside of those you will find brazed plate heat exchangers (BPHEs) are playing very important roles.
On the other side the most direct and effective way to save energies is to improve our system efficiency. Compared with other heat exchangers of the same purpose, properly designed BPHE can provide higher heat transfer efficiency and lower secondary side pressure drop. It is also widely used for heat reclaim circuit to deliver hot water or heating while cooling , thus to improve the overall efficiency of the system.
Obviously BPHE is able to contribute from both sides. In year 2021, Sanhua officially entered to stainless steel BPHE industry, and we strongly believe BPHE will contribute greatly to our eco-friendly solutions to customers.
Prior to the acquisition, Sanhua has studied in the field of aluminium BPHE for many years and been leading the industry of automotive and residential appliances. A series of optimization designs were immediately introduced to the stainless steel BPHE portfolio. Thanks to Sanhua's professional and powerful laboratory, the advantages of these new designs could be presented to our customers with visible values. Meanwhile the availability of these data is greatly benifical to our customers since many tests we did in our lab are under comprehensive conditions.
Hereby we are very glad to introduce some of our new technologies and the portfolio they go into.

Sanhua BPHE Thermal Performance Test Chamber

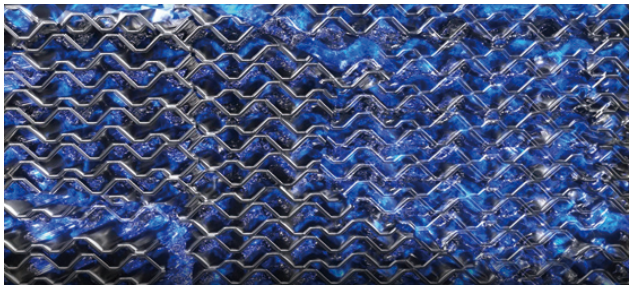
Visible performance and reliability

· Pressure/Temperature fatigue resistance

Pressure/Temperature fatigue happens mostly in heat pump or cascade systems where high and low temperatures exchanges frequently, as a result the brazing between the plates will fail. The mixing of medien of both sides will damage the entire system and even lead to more serious consequences.

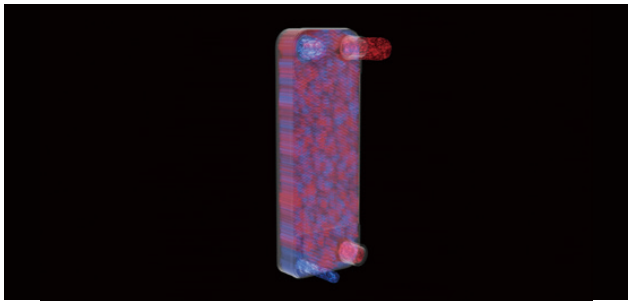
· Anti-freezing design

In the scenario of refrigerant/water exchange, it is necessary to prevent water temperature from falling to the freezing point and the plates from cracking. The mixing of refrigerant and water will damage the entire system and even lead to more serious consequences. Especially in chillers and heat pumps, during the start-up low pressure and low temperature may happen and resulting in icing on the water side. When the heat pump is switched from heating to defrosting, there is also a high risk of water freezing. Although proper system control can minimize the risk, there are still a lot of work can be done with BPHE itself. The BPHE is designed in the way that the water bypasses the risky areas and the areas with very low velocity, as a result the risk of freezing is much lower. Such extreme conditions are always challenges to achieve in customer's system test but Sanhua's freezing test bench can verfiy the freezing temperature at various conditions, so that customers can use them with confidence.



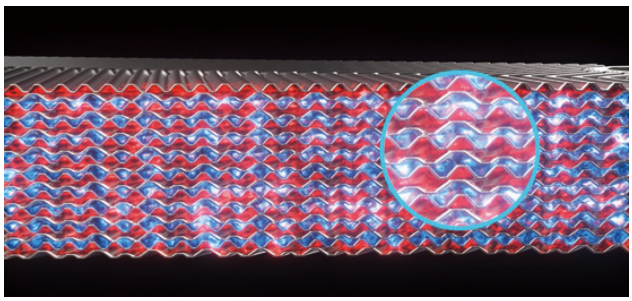
· Highly efficient distributor

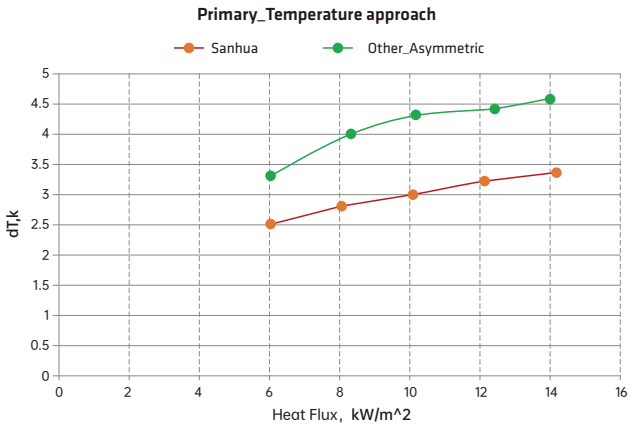
The design of distributor is especially critical for medium and large size evaporators. Sanhua distributor has its own design patent, and the distribution holes are part of the plates and making the heat exchanger extremely compact. Through the thermal imager in our laboratory, we can find how equally the distributor is distributing the refrigerant into all channels, maximizing the use of heat exchange area.

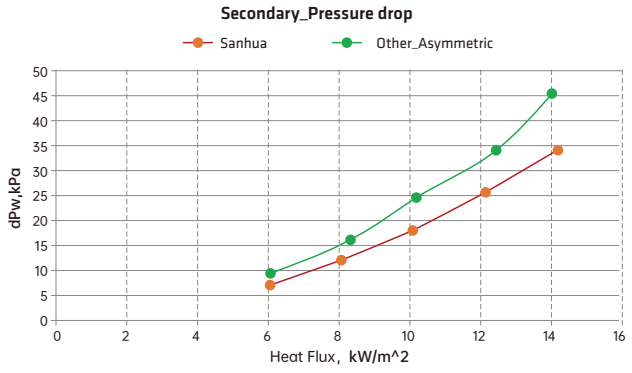


· Asymmetric Plate

With traditional symmetrical design, the channel area of primary and secondary sides are almost identical, it is simple and easy to produce. In reality different channel are required for primary and secondary side. By introducing asymmetric plate design, we properly reduced the volume of primary side to increase the evaporating temperature and heat transfer efficiency but still control the pressure drop within acceptable range. We take care of pressure drop more on secondary side, by increasing the volume of secondary side, the pressure drop is reduced dramatically and as a result the power consumption of the pump will be reduced drastically as well. Sanhua's thermal performance test chamber is able to test the temperature approach (dT) and pressure drop with various refrigerant and conditions. The data is showing in average 1K lower in dT and 25% lower in pressure drop even compared to asymmetric design from others.







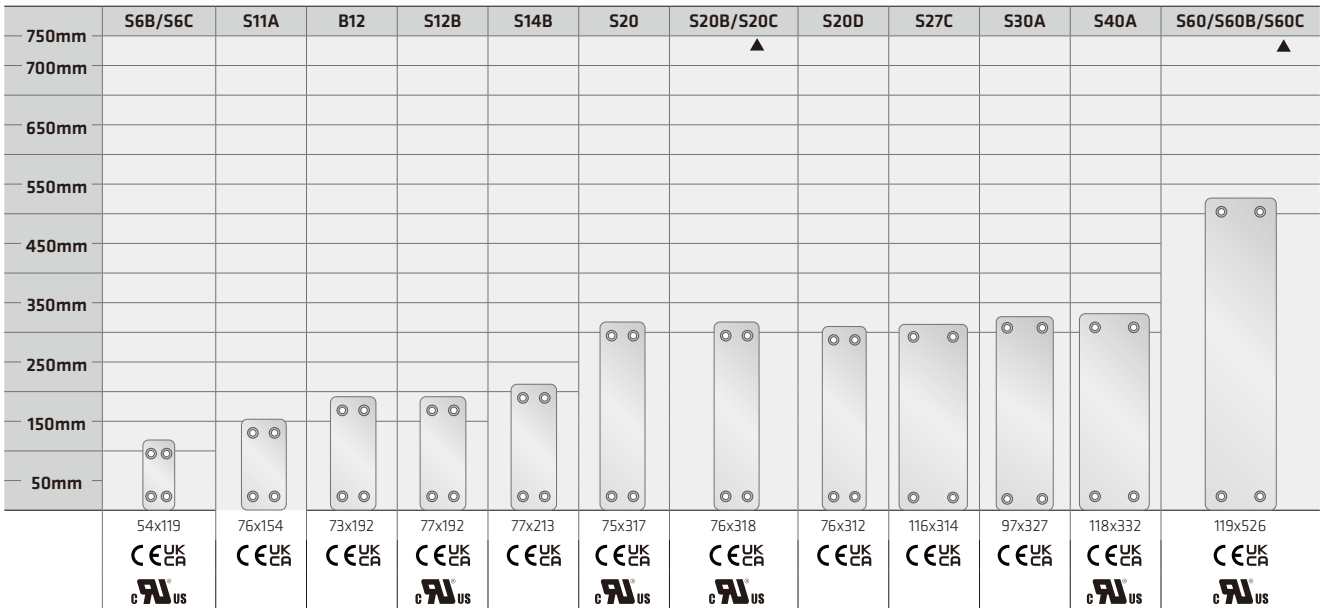
Sanhua is always thinking and working globally, and we have obtained EU PED certification and UL certification from authorized 3rd party. Our BPHEs legally work with fluid group 1 and group 2, including water, ethylene glycol solution, common HCFC, HFC, HC and HFO refrigerants such as R410A, R32, R454B, R290, R134a, R404A, R507, R448A, R449A, R1234yf, R1234ze and R452A etc. The design pressure is up to 50 bar.

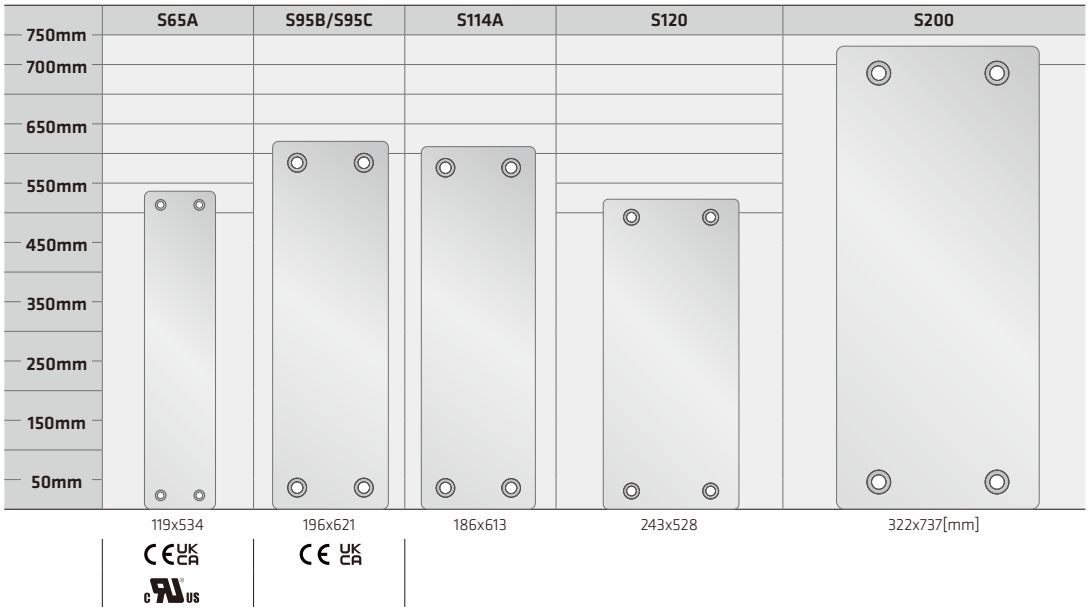
· Designation of SANHUA BPHE

S 200 A H - 50 H Z - XX

- XX: Design serial number (except boiler), 2 digits like 01,02…, including connections and bolts etc.
- Z: Presence of distributor such as Z, in case of vacant: w/o distributor.
- H: Fishbone angle: H(large angle), L(small angle) and M(mixed).
- 50: Numbers of plate, such as 8,20 and 50 etc.
- H: Design Pressure, H: up to 49bar, L: up to 30bar.
- A: Internal structure, with letter of A, B, C...including layout of plate, depth of plate and pitch of holes etc.
- 200: Nominal heat transfer area, such as 20, 95 and 200, unit: 1/1000m^2.
- S: Application:S=Standard HVAC&R,A=Air drier, B=Boiler, L=Open Type.

· **Below table is showing the recommended applications with different models :**





Note: ▲ Recommended model of the same sizes.

Brazed plate heat exchanger

Model	S6B	S6C	S11A	B12	S12B	S14B	S20	S20B	S20C	S20D	S27C
Dimension (Width x Height) (mm)	54x119	54X119	76x154	73X192	77x192	77x213	75x317	76x318	76x318	76X312	116x314
Capacity(Kw)*	1~5	1~5	1~8	1~80	1~10	2~15	2~25	2~25	2~25	2~25	2~30
Capactiy(Ton)*	0.3~1.4	0.3~1.4	0.3~2.3	0.3~22	0.3~2.8	0.6~4.3	0.6~7	0.6~7	0.6~7	0.6~8.5	0.6~7
Asymmetric	-	-	-	x	-	-	-	-	-	-	x
Distributor Option	-	-	-		-	-	-	-	-	-	x
VRF_Eco	x	x	x		x	x	x	x	x		x
ATW/ATA HP_Eco	x	x	x		x	x	x	x	x		x
ATW/GHP HP_Con											
Mini Chiller_Con/Evp											
E-Bus_Battery Cooling			x		x						
Energy Storage Cooling						x				x	
Data Center Cooling_EVP											
Data Center CDU											x
Transport_Eco/SuctionGas HX							x	x	x		
Water Chiller_Evp											
Water Chiller_Eco											
Ref. Rack_Eco							x	x	x		x
Ref._Waterloop_Con							x	x	x		x
Oil Cooler											
Boiler				x							

Model	S30A	S40A	S60	S60B	S60C	S65A	S95B	S95C	S114A	S120	S200
Dimension (Width x Height) (mm)	97x327	118x332	119x526	119x526	119x526	119x534	196x621	196x621	186X613	243X528	322X737
Capacity(Kw)*	5~30	5~40	10~90	10~90	10~90	10~90	30~200	30~200	30~200	30~400	80~600
Capactiy(Ton)*	1.4~8.5	1.4~11	2.8~26	2.8~26	2.8~26	2.8~26	8.5-56	8.5-56	9~56	9~112	24~168
Asymmetric	x	x	-	x	x	x	-	x	x		
Distributor Option	x	x	-	x	x	x	x	x	x		
VRF_Eco											
ATW/ATA HP_Eco											
ATW/GHP HP_Con	x	x	x	x	x	x					
Mini Chiller_Con/Evp	x	x	x	x	x	x					
E-Bus_Battery Cooling											
Energy Storage Cooling	x				x			x			
Data Center Cooling_EVP			x	x	x	x	x	x			
Data Center CDU									x	x	x
Transport_Eco/SuctionGas HX											
Water Chiller_Evp	x	x	x	x	x	x	x	x			
Water Chiller_Eco			x	x	x	x	x	x			
Ref. Rack_Eco									x		
Ref._Waterloop_Con											
Oil Cooler			x	x	x	x	x	x			
Boiler											

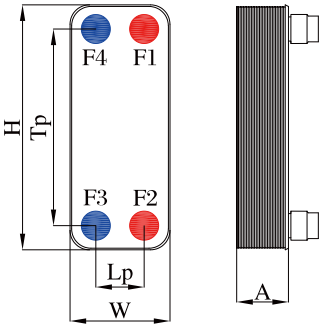
Note: * The cooling capacities are based on R410A, condensing temperature 40°C, 5K subcooling, water inlet/outlet temperature 12°C/7°C, 5K superheat.

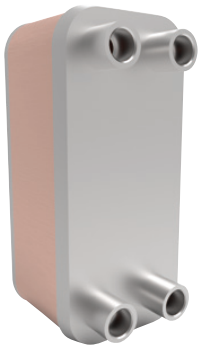
SANHUA **S6B**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S6B is widely used as economizer on VRF or as evaporator and condenser on small capacity heat pump. S6 has the compact structure and enhanced heat transfer advantages. The heat transfer capacity range is 1~5KW. Its mechanical design and reliability performance makes it suitable for high-pressure refrigerant such as R410A and R32.





Size Code	mm	IN
H	119	4.69
W	54	2.13
Tp	91	3.58
Lp	26	1.02
A	6+1.3N	0.236+0.051N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	60
Max flow (m^3/h)	1.7
Max. working pressure (MPa)	4.9(F1F2)/4.9(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.005(F1\F2)/0.005(F3F4)
Weight w/o connection (kg)	0.12+0.013N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Evaporation side	solder 1/4", 3/8"
F1-F2 Subcooling side	thread 1/4", 3/8"

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
Us: Underwriter Laboratories Inc. (UL).
UK: UK Conformity Assessed Marking (UKCA).
For additional requirements, please contact Sanhua.

· ACCESSORIES–STUD BOLTS

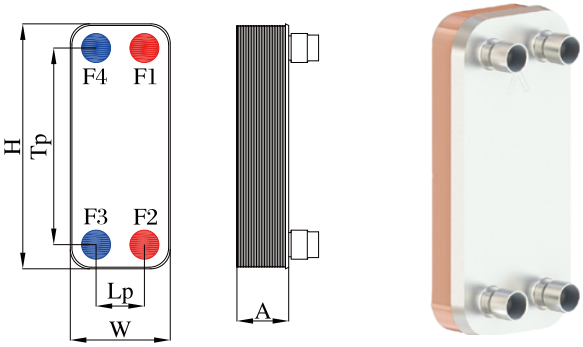
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S6C**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S6C series features the advantages of compact structure and enhanced heat transfer. It is widely used in the economizers of VRF and air heaters, as well as the evaporators and condensers of small - capacity heat pumps. The heat transfer capacity ranges from 1 to 5 KW. it is suitable for high-pressure refrigerants such as R410A and R32.The S6C is optimized based on the S6B. It adopts a stamped connection design. The connection can support bimetallic composite materials of copper and stainless steel, making the welding process more convenient.



Size Code	mm	IN
H	119	4.69
W	54	2.13
Tp	91	3.58
Lp	26	1.02
A	6+1.15N	0.236+0.045N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	60
Max flow (m^3/h)	1.7
Max. working pressure (MPa)	4.9(F1F2)/4.9(F3F4)
Working temperature (℃)	-196/200
Volume per channel (L)	0.005(F1F2)/0.005 (F3F4)
Weight w/o connection (kg)	0.12+0.01N
Flow Direction	Parallel flow
Plate	SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 3/8", 1/2"
F1-F2 Water side	thread: 1/2", 3/8"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
Us: Underwriter Laboratories Inc. (UL).
UK: UK Conformity Assessed Marking (UKCA).
For additional requirements, please contact Sanhua.

· ACCESSORIES–STUD BOLTS

Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S11A**

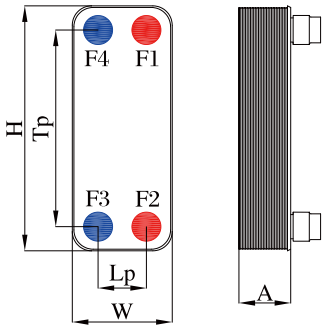
Brazed plate heat exchanger

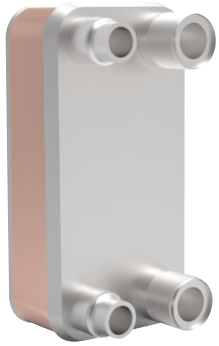
· INTRODUCTION

SANHUA S11A is widely used as economizer for VRF and heat pump. It can also be used for E-bus battery cooling or as evaporator for chiller with capacity below 5KW.

With the optimized shallow fishbone design, the heat transfer is enhanced and the pressure drop of water side (or secondary side) is decreased. The lower hold-up volume reduces the system refrigerant charge.

S11A is offering 2 options of design pressure, they are 3MPa and 5MPa for low and high-pressure refrigerant respectively.





Size Code	mm	IN
H	154	6.06
W	76	2.99
Tp	120	4.72
Lp	42	1.65
A	8+N	0.314+0.039N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	60
Max flow (m^3/h)	1.7
Max. working pressure (MPa)	4.9(F1F2)/4.9(F3F4) (optional)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.007(F1F2)/0.007(F3F4)
Weight w/o connection (kg)	0.305+0.03N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 3/8", 1/2" , 5/8" , 3/4"
F1-F2 Water side	thread: 3/8", 1/2" , 5/8" , 3/4" solder: 3/8", 1/2" , 5/8" , 3/4"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
For additional requirements, please contact Sanhua.

UK: UK Conformity Assessed Marking (UKCA).

· ACCESSORIES–STUD BOLTS

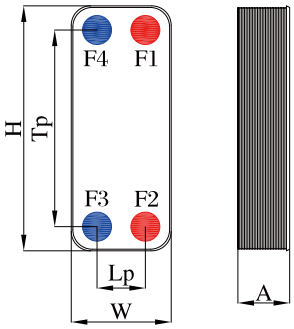
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

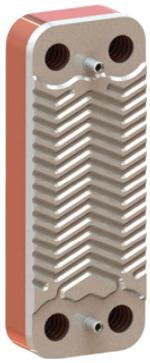
SANHUA **B12**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA B12 series is mainly used in boilers. This product is specially developed for boilers. The maximum heat transfer capacity can reach 80 KW. It adopts a double fishbone design, resulting in low flow resistance. It can be installed in various ways, featuring a compact structure, high heat transfer efficiency, and strong reliability.





Size Code	mm	IN
H	192	7.56
W	73	2.87
Tp	154	6.06
Lp	40	1.57
A	8+2.25N	0.315+0.089N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	60
Max flow (m^3/h)	4
Max. working pressure (MPa)	1.0(F1F2)/1.0(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.018(F1F2)/0.018 (F3F4)
Weight w/o connection (kg)	0.26+0.041N
Flow Direction	Parallel flow/Diagonal flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
For additional requirements, please contact Sanhua.

UK: UK Conformity Assessed Marking (UKCA).

· ACCESSORIES–STUD BOLTS

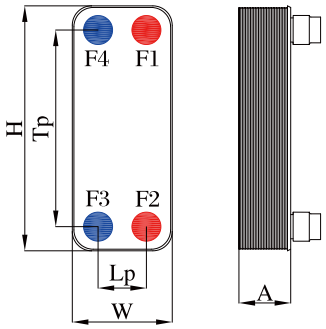
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

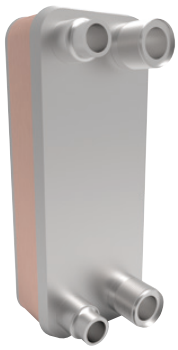
SANHUA **S12B**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S12B is widely used in chillers and heat pumps as evaporator, condenser and economizer. With optimized shallow fishbone design, it enhances the heat transfer and decreases the pressure drop of secondary side. The lower hold-up volume reduces the system refrigerant charge. S12B is suitable for high-pressure refrigerant like R410A and R32. Its heat transfer capacity is up to 10KW.





Size Code	mm	IN
H	192	7.56
W	77	3.03
Tp	154	6.06
Lp	40	1.57
A	9+N	0.354+0.039N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	60
Max flow (m³/h)	1.7
Max. working pressure (MPa)	4.9(F1F2)/4.9(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.009(F1F2)/0.009(F3F4)
Weight w/o connection (kg)	0.485+0.035N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 3/8", 1/2" , 5/8" , 3/4"
F1-F2 Water side	thread: 3/8", 1/2" , 5/8" , 3/4" solder: 3/8", 1/2" , 5/8" , 3/4"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
Us: Underwriter Laboratories Inc. (UL).
UK: UK Conformity Assessed Marking (UKCA).
For additional requirements, please contact Sanhua.

· ACCESSORIES–STUD BOLTS

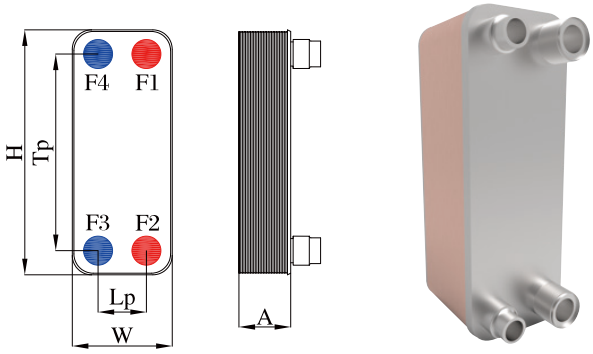
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S14B**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S14B can be used as condensers or evaporators in chillers, heat pumps, energy storage system and cascade systems. The plate adopts optimized fishbone design, which has high reliability and high heat transfer efficiency, reduces water side pressure drop and refrigerant charge.



Size Code	mm	IN
H	213	8.39
W	77	3.03
Tp	172	6.77
Lp	42	1.65
A	10+2.15N	0.394+0.085N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	60
Max flow (m^3/h)	4
Max. working pressure (MPa)	4.9(F1F2)/4.9(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.026(F1F2)/0.026(F3F4)
Weight w/o connection (kg)	0.68+0.048N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 1/4", 3/8", 1/2" , 5/8" , 3/4", 7/8"
F1-F2 Water side	thread: 1/4", 3/8", 1/2" , 5/8" , 3/4"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
For additional requirements, please contact Sanhua.

UK: UK Conformity Assessed Marking (UKCA).

· ACCESSORIES–STUD BOLTS

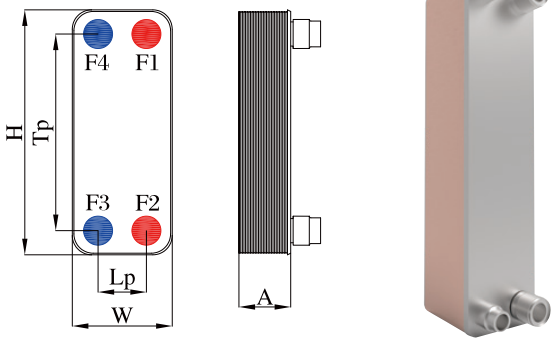
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S20**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S20 can be used as an evaporator, condenser, economizer and desuperheater in chillers and heat pumps. It is also used as economizer or intercooler for commercial and transportation refrigeration, or as water cooled condenser in semi-plug in display case (waterloop). The plate adopts optimized fishbone design, which has high reliability and high heat transfer efficiency.



Size Code	mm	IN
H	317	12.48
W	75	2.95
Tp	278	10.94
Lp	42	1.65
A	10+2.25N	0.394+0.089N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	60
Max flow (m^3/h)	4
Max. working pressure (MPa)	3(F1F2)/4.9(F3F4) (optional)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.04(F1F2)/0.04(F3F4)
Weight w/o connection (kg)	0.72+0.068N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 1/4", 3/8", 1/2" , 5/8" , 3/4", 7/8"
F1-F2 Water side	thread: 1/4", 3/8", 1/2" , 5/8" , 3/4" solder: 1/4", 3/8", 1/2" , 5/8" , 3/4"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
Us: Underwriter Laboratories Inc. (UL).
UK: UK Conformity Assessed Marking (UKCA).
For additional requirements, please contact Sanhua.

· ACCESSORIES–STUD BOLTS

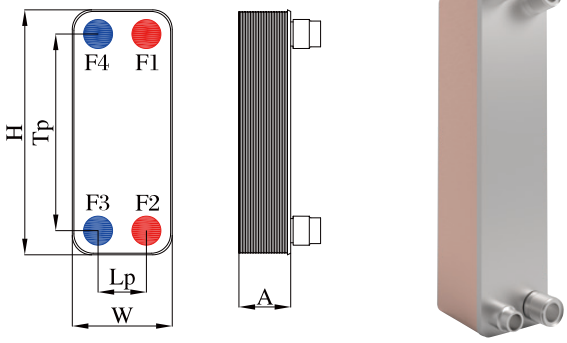
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S20B**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S20 can be used as an evaporator, condenser, economizer and desuperheater in chillers and heat pumps. It is also used as economizer or intercooler for commercial and transportation refrigeration, or as water cooled condenser in semi-plug in display case (waterloop). With optimized shallow fishbone design , S20B is compact and has high heat transfer efficiency.



Size Code	mm	IN
H	318	12.52
W	76	2.99
Tp	278	10.94
Lp	42	1.65
A	9+1.5N	0.354+0.059N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	60
Max flow (m^3/h)	4
Max. working pressure (MPa)	4.9(F1F2)/4.9(F3F4) (optional)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.024(F1F2)/0.024(F3F4)
Weight w/o connection (kg)	0.97+0.069N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 1/4", 3/8", 1/2" , 5/8" , 3/4", 7/8"
F1-F2 Water side	thread: 1/4", 3/8", 1/2" , 5/8" , 3/4" solder: 1/4", 3/8", 1/2" , 5/8" , 3/4"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
Us: Underwriter Laboratories Inc. (UL).
UK: UK Conformity Assessed Marking (UKCA).
For additional requirements, please contact Sanhua.

· ACCESSORIES–STUD BOLTS

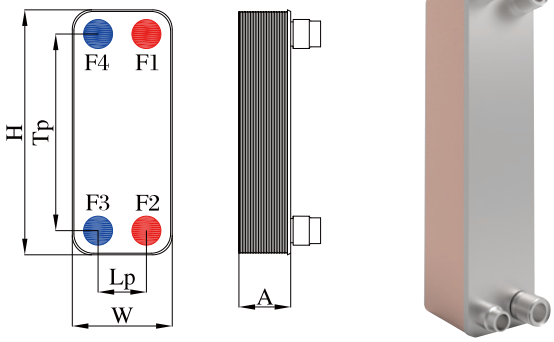
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S20C**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S20C can be used as an evaporator, condenser, economizer and desuperheater in chillers and heat pumps. It is also used as economizer or intercooler for commercial and transportation refrigeration, or as water cooled condenser in semi-plug in display case (waterloop). With optimized shallow fishbone design, S20C is compact and has high heat transfer efficiency.



Size Code	mm	IN
H	318	12.52
W	76	2.99
Tp	278	10.94
Lp	40	1.57
A	10+2.25N	0.394+0.088N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	60
Max flow (m³/h)	4
Max. working pressure (MPa)	4.2(F1F2)/4.2(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.040 (F1F2)/0.040 (F3F4)
Weight w/o connection (kg)	0.72+0.068N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 1/4", 3/8", 1/2" , 5/8" , 3/4", 7/8"
F1-F2 Water side	thread: 1/4", 3/8", 1/2" , 5/8" , 3/4" solder: 1/4", 3/8", 1/2" , 5/8" , 3/4"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
US： Underwriter Laboratories Inc. (UL).
UK: UK Conformity Assessed Marking (UKCA).
For additional requirements, please contact Sanhua.

· ACCESSORIES–STUD BOLTS

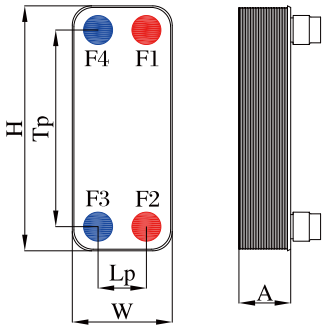
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

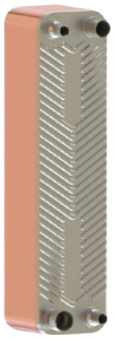
SANHUA **S20D**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S20D can be used as evaporators, condensers, economizers, and desuperheaters in chiller units and heat pump systems. It can also be applied to commercial refrigeration and cold - storage systems. For example, it can serve as the economizer and intercooler of commercial refrigeration units or transport refrigeration units, or as the water - cooled condenser of semi - self - contained display cabinets (Waterloop system). The S20D features a compact structure. It adopts an optimized fishbone design, ensuring high heat - transfer efficiency. The S20D is suitable for R290 systems. Laser welding is used between the connection and the heat - exchanger body, and it can be adapted to various types of connections.





Size Code	mm	IN
H	312	12.28
W	76	2.99
Tp	278	10.94
Lp	42	1.65
A	9+1.45N	0.354+0.057N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	60
Max flow (m^3/h)	4
Max. working pressure (MPa)	4.9(F1F2)/4.9(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.024 (F1F2)/0.024 (F3F4)
Weight w/o connection (kg)	0.81+0.061N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 3/8", 1/2" , 5/8" , 3/4"
F1-F2 Water side	thread: 1/4", 3/8", 1/2" , 5/8" , 3/4" solder: 3/8", 1/2" , 5/8" , 3/4"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
For additional requirements, please contact Sanhua.

UK: UK Conformity Assessed Marking (UKCA).

· ACCESSORIES–STUD BOLTS

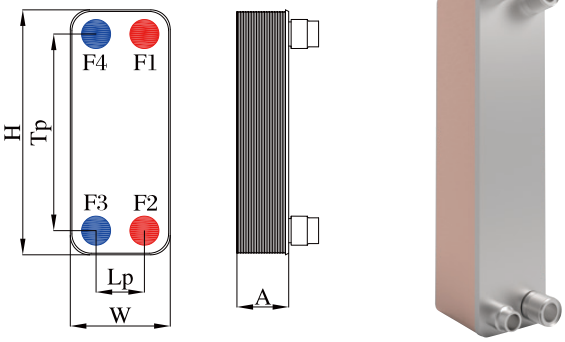
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S27C**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S27C can be used as an evaporator, condenser, economizer and desuperheater in chillers, heat pumps and also suitable for 6~9KW energy storage system. S27C is compact, has high heat transfer efficiency and high reliability.



Size Code	mm	IN
H	314	12.52
W	116	2.99
Tp	250	10.94
Lp	50	1.57
A	12+2.25N	0.472+0.088N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	120
Max flow (m^3/h)	5.5
Max. working pressure (MPa)	4.9(F1F2)/4.9(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.050 (F1F2)/0.050 (F3F4)
Weight w/o connection (kg)	1.4+0.1N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 1/4", 3/8", 1/2" , 5/8" , 3/4", 7/8"
F1-F2 Water side	thread: 1/4", 3/8", 1/2" , 5/8" , 3/4" solder: 1/4", 3/8", 1/2" , 5/8" , 3/4"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
For additional requirements, please contact Sanhua.

UK: UK Conformity Assessed Marking (UKCA).

· ACCESSORIES–STUD BOLTS

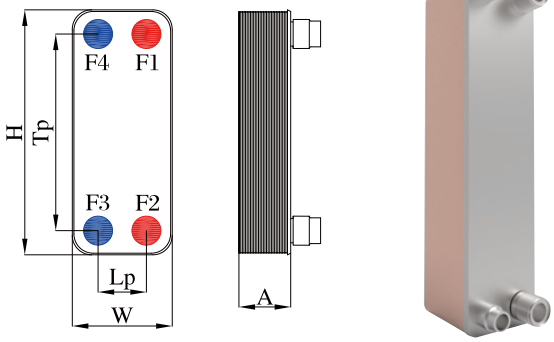
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S30A**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S30A is widely used as condenser or evaporator in air-cooled chillers (or heat pumps) with capacity up to 30kw. Its high reliable structural design makes it suitable for high-pressure refrigerants such as R410A and R32.The plate adopts optimized asymmetric fishbone design and innovative distributor design, which has high heat transfer efficiency and reduces water side pressure drop. The lower hold-up volume will help to reduce the refrigerant charge.



Size Code	mm	IN
H	326	12.83
W	96	3.78
Tp	269	10.59
Lp	39	1.54
A	11.5+1.54N	0.453+0.061N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	120
Max flow (m^3/h)	6
Max. working pressure (MPa)	2.5(F1F2)/4.9(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.038 (F1F2)/0.032 (F3F4)
Weight w/o connection (kg)	0.90+0.084N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 1/4", 3/8", 1/2" , 5/8" , 3/4", 7/8"
F1-F2 Water side	thread: 1/4", 3/8", 1/2" , 5/8" , 3/4"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
For additional requirements, please contact Sanhua.

UK: UK Conformity Assessed Marking (UKCA).

· ACCESSORIES–STUD BOLTS

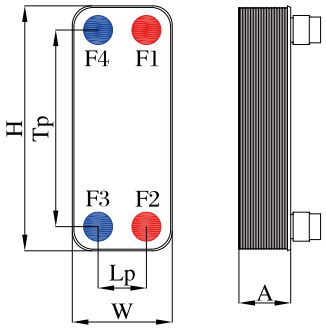
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

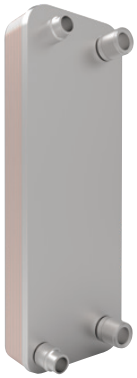
SANHUA **S40A**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S40A is widely used as condenser or evaporator in air-cooled chillers (or heat pumps) with capacity up to 50kw. Its high reliable structural design makes it suitable for high-pressure refrigerants such as R410A and R32.The plate adopts optimized asymmetric fishbone design and innovative distributor design, which has high heat transfer efficiency and reduces water side pressure drop. The lower hold-up volume will help to reduce the refrigerant charge.





Size Code	mm	IN
H	332	13.07
W	118	4.65
Tp	279 (F1F2) 286 (F3F4)	10.98 11.26
Lp	68 (F1F4) 75 (F2F3)	2.68 2.95
A	10.5+1.53N	0.413+0.06N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	120
Max flow (m^3/h)	8.8
Max. working pressure (MPa)	2.5(F1F2)/4.9(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.0486(F1F2)/0.0422(F3F4)
Weight w/o connection (kg)	1.26+0.106N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 1/4", 3/8", 1/2" , 5/8" , 3/4", 7/8"
F1-F2 Water side	thread: 1/4", 3/8", 1/2" , 5/8" , 3/4"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
Us: Underwriter Laboratories Inc. (UL).
UK: UK Conformity Assessed Marking (UKCA).
For additional requirements, please contact Sanhua.

· ACCESSORIES–STUD BOLTS

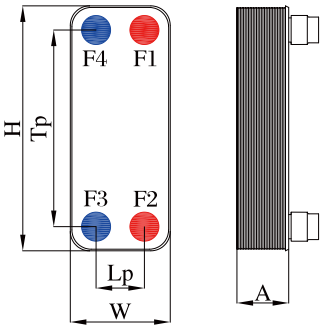
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

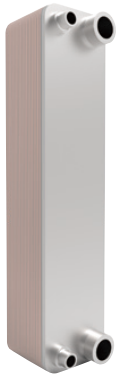
SANHUA **S60**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S60 is widely used in chillers,heat pumps and IT cooling as evaporator or condenser. It is also used as economizer or oil cooler for screw chillers. The optimized plate technology can reduce the water side pressure drop and provide efficient heat transfer performance at the same design temperature.





Size Code	mm	IN
H	526	20.71
W	119	4.69
Tp	470	18.5
Lp	63	2.48
A	9+2.3N	0.354+0.091N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	120
Max flow (m^3/h)	17
Max. working pressure (MPa)	3.0/5.0 (optional)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.11/0.11
Weight w/o connection (kg)	2.6+0.18*N
Flow Direction	Parallel flow
Plate	SUS 316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: up to 1"3/8
F1-F2 Water side	thread: up to 1"1/4

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
Us: Underwriter Laboratories Inc. (UL).
UK: UK Conformity Assessed Marking (UKCA).
For additional requirements, please contact Sanhua.

· ACCESSORIES–STUD BOLTS

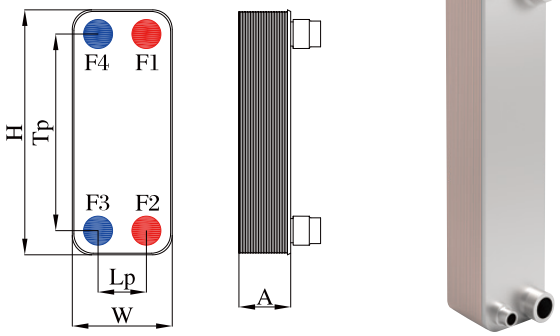
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S60B**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S60B is widely used in chillers, heat pumps and IT cooling as evaporator and condenser. It is also be used as economizer or oil cooler for screw chillers. The capacity range is 10~90KW. The asymmetric heat plate and optimized distributor can reduce the water side pressure drop and provide efficient heat transfer performance at the same design temperature.



Size Code	mm	IN
H	526	20.71
W	119	4.69
Tp	470	18.5
Lp	63	2.48
A	13+1.86N	0.512+0.073N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	120
Max flow (m^3/h)	17
Max. working pressure (MPa)	3(F1F2)/4.9(F3F4) (optional)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.0967(F1F2)/0.0863(F3F4)
Weight w/o connection (kg)	2.2+0.168N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: up to 1"3/8
F1-F2 Water side	thread: up to 1"1/4

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
Us: Underwriter Laboratories Inc. (UL).
UK: UK Conformity Assessed Marking (UKCA).
For additional requirements, please contact Sanhua.

· ACCESSORIES–STUD BOLTS

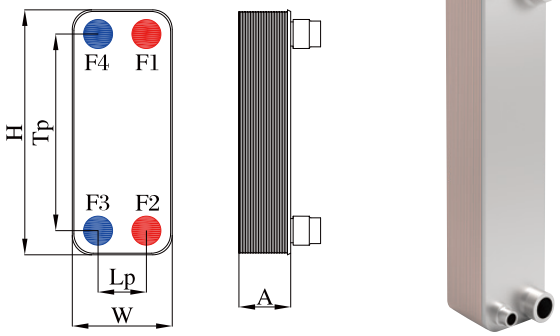
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S60C**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S60C is widely used in chillers, heat pumps,energy storage system and IT cooling as evaporator and condenser. It is also be used as economizer or oil cooler for screw chillers. The capacity range is 10~90KW. The asymmetric heat plate and optimized distributor can reduce the water side pressure drop and provide efficient heat transfer performance at the same design temperature.



Size Code	mm	IN
H	526	20.71
W	119	4.69
Tp	470	18.5
Lp	63	2.48
A	13+2.2N	0.512+0.087N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	120
Max flow (m^3/h)	17
Max. working pressure (MPa)	2.5(F1F2)/4.5(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.121(F1F2)/0.103(F3F4)
Weight w/o connection (kg)	2.2+0.168N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: up to 1"3/8
F1-F2 Water side	thread: up to 1"1/4

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
Us: Underwriter Laboratories Inc. (UL).
UK: UK Conformity Assessed Marking (UKCA).
For additional requirements, please contact Sanhua.

· ACCESSORIES–STUD BOLTS

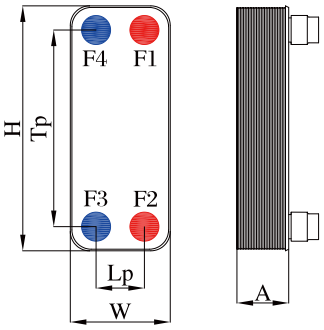
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S65A**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S65A is suitable for new refrigerant R290, which can be widely used in chillers and heat pump systems as evaporators and condensers, with a heat transfer capacity of 10~ 90KW. S65A adopts a double asymmetric plate structure and a shallow corrugated plate structure, which can effectively improve the asymmetric ratio of the water side and the refrigerant side channels, making the product structure more compact. Compared with S60B, the charging capacity of R290 is reduced by about 37% (Heat exchanger inside).



Size Code	mm	IN
H	534	21.02
W	119	4.69
Tp	476	18.74
Lp	60	2.36
A	12+1.4N	0.472+0.055N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	120
Max flow (m³/h)	6
Max. working pressure (MPa)	2.5(F1F2)/3.2(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.082 (F1F2)/0.054 (F3F4)
Weight w/o connection (kg)	2.2+0.15N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Parallel flow

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 1/4", 3/8", 1/2" , 5/8" , 3/4", 7/8", 1"", 1"1/4, 1"3/8
F1-F2 Water side	thread: 1/4", 3/8", 1/2" , 5/8" , 3/4", 7/8", 1", 1"1/4

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
Us: Underwriter Laboratories Inc. (UL).
UK: UK Conformity Assessed Marking (UKCA).
For additional requirements, please contact Sanhua.

· ACCESSORIES–STUD BOLTS

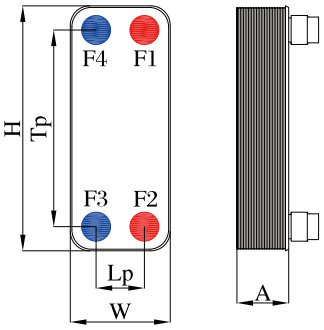
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

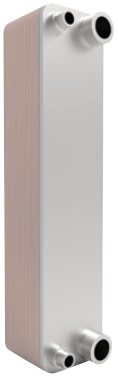
SANHUA **S95B**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S95B is widely used in chillers, heat pumps as evaporator and condenser. It is also used as economizer or oil cooler for screw chillers. The capacity range is 30~200KW. The optimized distributor can reduce the water side pressure drop and provide efficient heat transfer performance at the same design temperature.





Size Code	mm	IN
H	621	24.45
W	196	7.72
Tp	519	20.4
Lp	92	3.62
A	14+2.28N	0.551+0.090N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	250
Max flow (m^3/h)	35
Max. working pressure (MPa)	4.9(F1F2)/4.9(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.220 (F1F2)/0.220 (F3F4)
Weight w/o connection (kg)	6.2+0.367N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: up to 2"1/8
F1-F2 Water side	thread: up to 2"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
For additional requirements, please contact Sanhua.

UK: UK Conformity Assessed Marking (UKCA).

· ACCESSORIES–STUD BOLTS

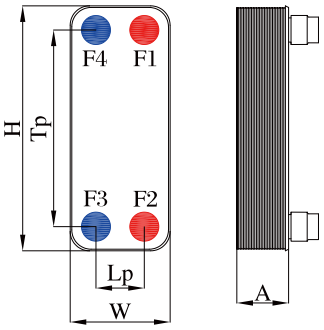
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

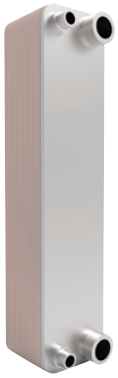
SANHUA **S95C**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S95C is widely used in chillers, heat pumps and energy storage system as evaporator and condenser. It is also used as economizer or oil cooler for screw chillers. The capacity range is 30~200KW. The plate adopts optimized asymmetric fishbone design and innovative distributor design, which has high heat transfer efficiency and reduces water side pressure drop at the same design temperature.





Size Code	mm	IN
H	621	24.45
W	196	7.72
Tp	519	20.4
Lp	92	3.62
A	14+2.28N	0.551+0.090N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	250
Max flow (m^3/h)	35
Max. working pressure (MPa)	2.5 (F1F2)/4.9 (F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.243 (F1F2)/0.202 (F3F4)
Weight w/o connection (kg)	6.2+0.367N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: up to 2"1/8
F1-F2 Water side	thread: up to 2"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.
For additional requirements, please contact Sanhua.

UK: UK Conformity Assessed Marking (UKCA).

· ACCESSORIES–STUD BOLTS

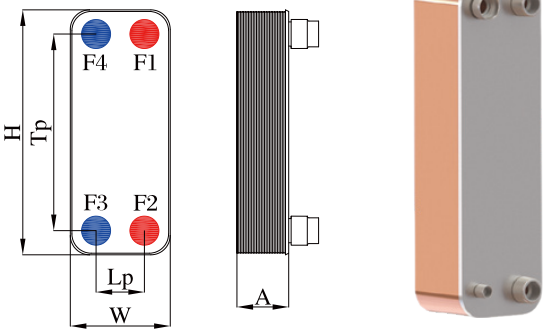
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S114A**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S114A can be used as an economizer for modular units and screw compressors, and it can also be applied in data center cooling systems. Its heat transfer capacity ranges from 30 to 200 kW. The S114A adopts a double-asymmetric plate structure and an optimized distributor design, which reduces the water - side pressure drop while providing high - efficiency heat transfer performance.



Size Code	mm	IN
H	613	24.13
W	186	7.32
Tp	519 (F1F2) 515 (F3F4)	20.43 (F1F2) 20.28 (F3F4)
Lp	92 (F1F4) 98 (F2F3)	3.62 (F1F4) 3.86 (F2F3)
A	10+1.8N	0.394+0.071N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	250
Max flow (m^3/h)	35
Max. working pressure (MPa)	3.0(F1F2)/3.0(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.193 (F1F2)/0.137 (F3F4)
Weight w/o connection (kg)	3.38+0.29N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: up to 2"1/8
F1-F2 Water side	thread: up to 2" solder: up to 2"1/8

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· ACCESSORIES–STUD BOLTS

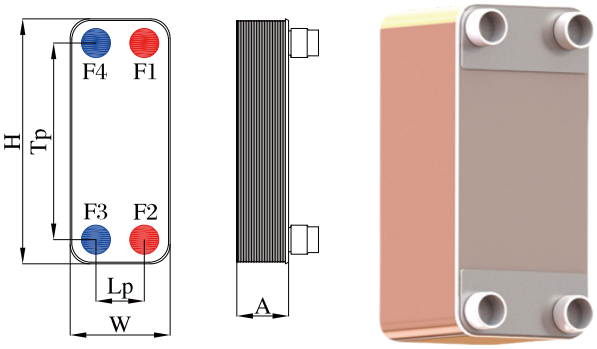
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S120**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S120 is mainly used for water-to-water or water-to-ethylene glycol heat exchange in data centers. The heat transfer capacity ranges from 30 to 400 kW. It adopts a fishbone design, featuring low flow resistance, a compact structure, high heat transfer efficiency, and strong reliability.



Size Code	mm	IN
H	528	20.79
W	243	9.57
Tp	448.5	17.66
Lp	163.5	6.44
A	10+2.25N	0.394+0.089N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	260
Max flow (m^3/h)	80
Max. working pressure (MPa)	3.0(F1F2)/3.0(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.22 (F1F2)/0.22 (F3F4)
Weight w/o connection (kg)	7+0.35N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Refrigerant side	solder: 1/4″, 3/8″, 1/2″, 5/8″, 3/4″, 7/8″, 1″, 1″1/8, 1″1/4, 1″3/8, 1″1/2, 1″5/8, 2″ thread: 1/2″, 3/4″, 1″, 1″1/4, 1″1/2, 2″
F1-F2 Water side	solder: 1/4″, 1/2″, 3/8″, 5/8″, 3/4″, 7/8″, 1″, 1″1/8, 1″1/4, 1″3/8, 1″1/2, 1″5/8, 2″ thread: 1/2″, 3/4″, 1″, 1″1/4, 1″1/2, 2″

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· ACCESSORIES–STUD BOLTS

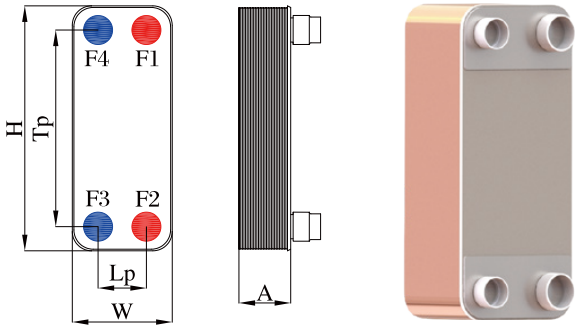
Stud bolts and feet on front / end cover plate for mounting support are available upon request.

SANHUA **S200**

Brazed plate heat exchanger

· INTRODUCTION

SANHUA S200 is mainly used for water-to-water or water-to-ethylene glycol heat exchange in data centers. The heat transfer capacity ranges from 80 to 600 kW. It features a fishbone wave design, which results in low flow resistance, a compact structure, high heat transfer efficiency, and high reliability.



Size Code	mm	IN
H	737	29.02
W	322	12.68
Tp	603	23.74
Lp	188	7.4
A	12+2.65N	0.472+0.104N

· TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	260
Max flow (m³/h)	150
Max. working pressure (MPa)	3.0(F1F2)/3.0(F3F4)
Working temperature (℃)	-196/+200
Volume per channel (L)	0.51 (F1F2)/0.51 (F3F4)
Weight w/o connection (kg)	18.5+0.75N
Flow Direction	Parallel flow
Plate	316L/SUS 304
Connection	SUS 304
Solder	Copper

· STANDARD CONNECTIONS

F3-F4 Water side	solder: 1/4", 3/8", 1/2" , 5/8", 3/4", 7/8", 1", 1"1/8, 1"1/4, 1"3/8, 1"1/2, 1"5/8, 2", 2"1/4, 2"1/2, 2"3/4, 3", 4" thread: 1/4", 3/8", 1/2", 5/8", 3/4"
F1-F2 Water side	solder: 1/4", 1/2", 3/8", 1/2", 5/8", 3/4", 7/8", 1", 1"1/8, 1"1/4, 1"3/8, 1"1/2, 1"5/8, 2", 2"1/4, 2"1/2, 2"3/4, 3", 4" thread: 1/2", 3/4", 1", 1"1/4, 1"1/2, 2", 2"1/2, 3", 4"

Note: The BPHE is used as an evaporator, F3/F4 is the refrigerant inlet/outlet.

· ACCESSORIES–STUD BOLTS

Stud bolts and feet on front / end cover plate for mounting support are available upon request.

We have developed our selection software but it is still in Alpha version (internal test). We'd appreciate if you could provide following information and we will come back with calculation report before the Beta version(external testing) is released.

Evaporator	Condenser	Economizer	Boiler
		(Ref./Ref.)	(Water/Water)
Capacity	Capacity	Capacity	Capacity
Primary & Secondary refrigerant	Primary & Secondary refrigerant	Refrigerant	Type of Medium
Inlet & Outlet Temp. of Secondary refrigerant	Inlet & Outlet Temp. of Secondary refrigerant	Inlet & Outlet Temp. of liquid phase refrigerant	Inlet & Outlet Temp. of both sides
Max. permissible pressure drop of Secondary refrigerant	Max. permissible pressure drop of Secondary refrigerant	Max. permissible pressure drop of liquid side	Max. permissible pressure drop of both sides
Inlet temperature of Expansion valve	Inlet Temp. of Condenser	Inlet temperature of Expansion valve	Mass flow of both sides
Evaporating Temperature	Condensing Temperature	Economizer Evap. Temp.	
Superheat	Subcooling	Superheat at economizer outlet	
Max. permissible pressure drop of primary refrigerant	Max. permissible pressure drop of primary refrigerant	Max. permissible pressure drop of vaper side	

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