

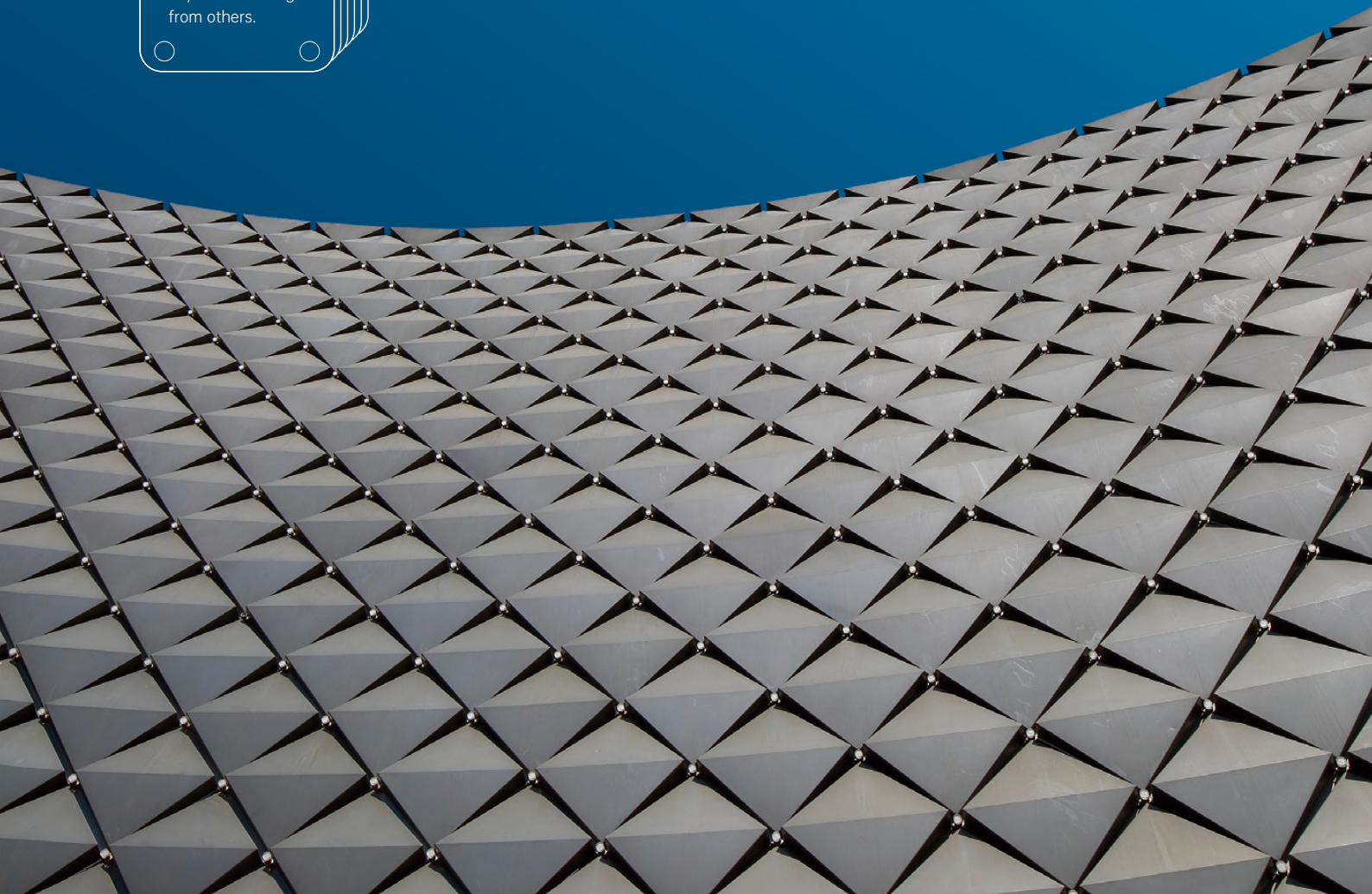
# Stainless Steel Braze Plate Heat Exchanger

*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

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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 beneficial 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

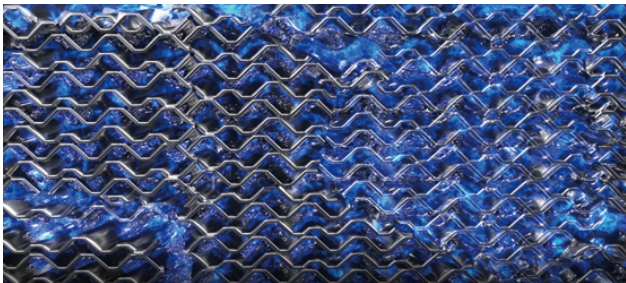


Pressure/Temperature fatigue happens mostly in heat pump or cascade systems where high and low temperatures exchanges frequently, as a result the brazing between the plates will fail. The mixing of medien of both sides will damage the entire system and even lead to more serious consequences.

## · Anti-freezing design



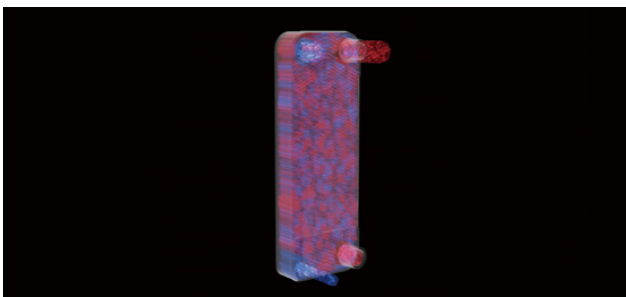
In the scenario of refrigerant/water exchange, it is necessary to prevent water temperature from falling to the freezing point and the plates from cracking. The mixing of refrigerant and water will damage the entire system and even lead to more serious consequences. Especially in chillers and heat pumps, 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 verify the freezing temperature at various conditions, so that customers can use them with confidence.



## · Highly efficient distributor



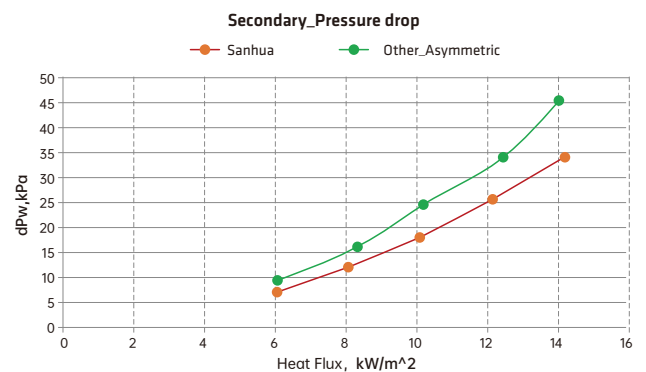
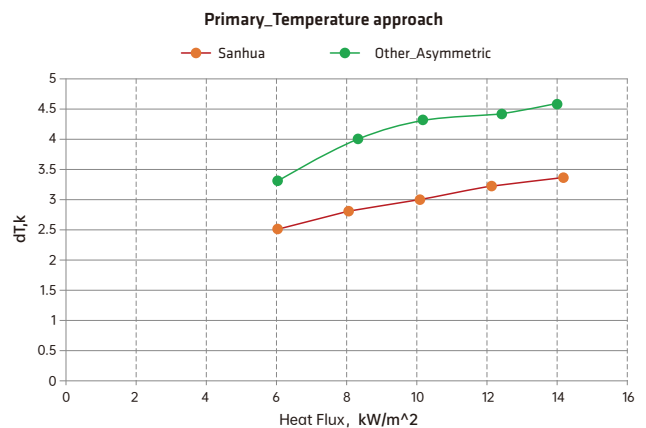
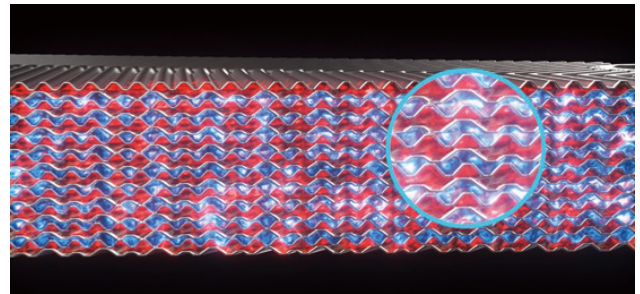
The design of distributor is especially critical for medium and large size evaporators. Sanhua distributor has its own design patent, and the distribution holes are part of the plates and making the heat exchanger extremely compact. Through the thermal imager in our laboratory, we can find how equally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



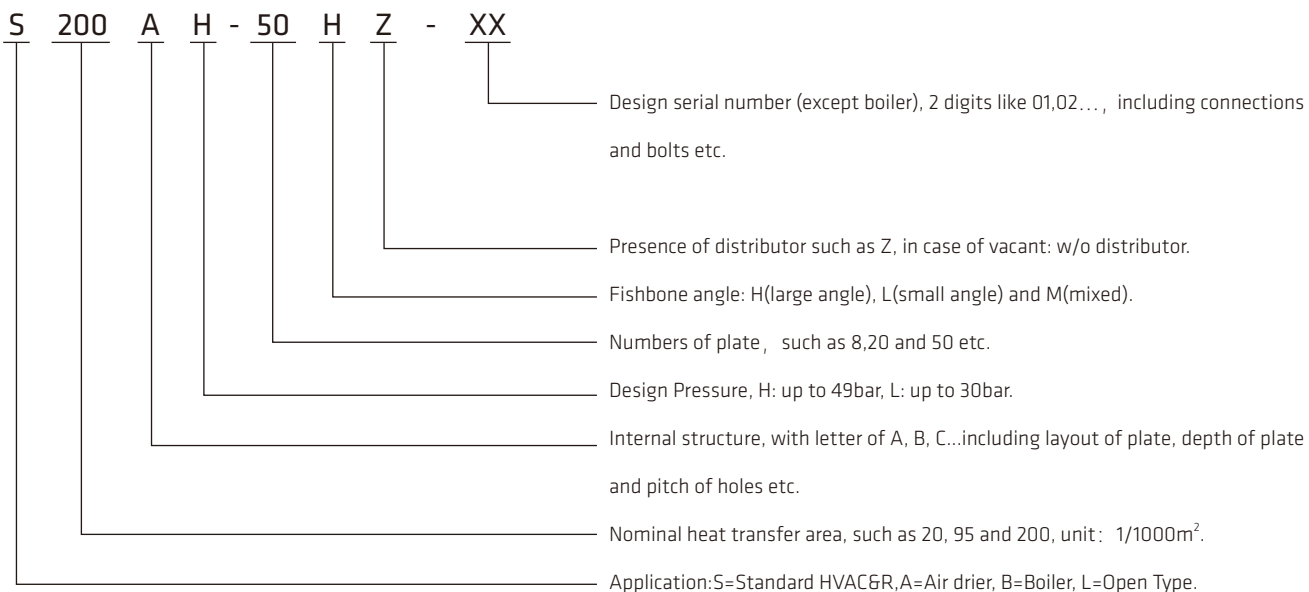
# SANHUA

## Brazed plate heat exchanger



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



# SANHUA Brazen plate heat exchanger



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

	S6B	S11A	S12B	S14B	S20	S20B/S20C	S27C	S30A	S40A	S60/S60B/S60C	S65A	S95B/S95C
650mm						▲				▲		
550mm												
450mm												
350mm												
250mm												
150mm												
50mm												
	54x119	76x154	77x192	77x213	75x317	76x318	116x314	97x327	118x332	119x526	119x534	196x621[mm]
	CE	CE UK CEA	CE UK CEA cRU US	CE UK CEA	CE UK CEA cRU US	CE UK CEA cRU US	CE UK CEA	CE UK CEA	CE UK CEA cRU US	CE UK CEA cRU US	CE UK CEA	CE UK CEA

	S6B	S11A	S12B	S14B	S20	S20B	S20C	S27C	S30A	S40A	S60	S60B	S60C	S65A	S95B	S95C
Capacity(Kw)*	1~5	1~8	1~10	2~15	2~25	2~25	2~25	2~30	5~30	5~40	10~90	10~90	10~90	10~90	30~200	30~200
Capacity(Ton)*	0.3~1.4	0.3~2.3	0.3~2.8	0.6~4.3	0.6~7	0.6~7	0.6~7	0.6~8.5	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
Asymmetric	-	-	-	-	-	-	-	-	X	X	-	X	X	X	-	X
Distributor Option	-	-	-	-	-	-	-	-	X	X	-	X	X	X	X	X
VRF_Eco	X	X	X	X	X	X	X	X								
ATW/ATA HP_Eco	X	X	X	X	X	X	X	X								
ATW/GHP HP_Con									X	X	X	X	X	X		
Mini Chiller_Con/Evp									X	X	X	X	X	X		
E-Bus_Battery Cooling		X	X													
Energy Storage Cooling				X				X	X				X			X
Data Center Cooling_EVP											X	X	X	X	X	X
Transport_Eco/SuctionGas HX					X	X	X									
Water Chiller_Evp									X	X	X	X	X	X	X	X
Water Chiller_Eco											X	X	X	X	X	X
Ref. Rack_Eco					X	X	X									
Ref. Waterloop_Con					X	X	X									
Oil Cooler											X	X	X	X	X	X

Note: ▲ Recommended model of the same sizes.

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



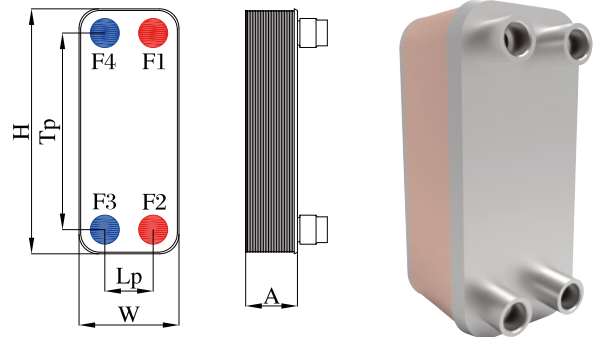
# SANHUA S6B

## 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 <sup>3</sup> /h)	1.7
Max. working pressure(MPa)	4.9(F1F2)/4.9(F3F4)
Working temperature(°C )	-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.

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

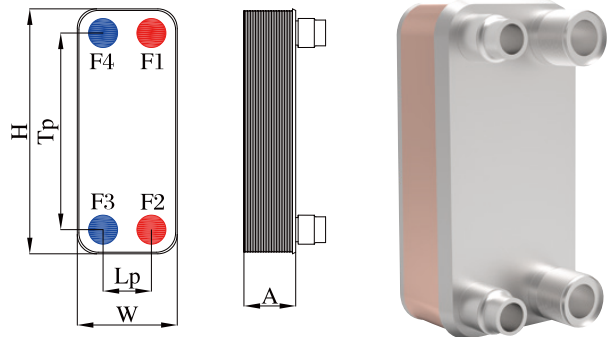


### • INTRODUCTION

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
<b>H</b>	154	6.06
<b>W</b>	76	2.99
<b>Tp</b>	120	4.72
<b>Lp</b>	42	1.65
<b>A</b>	8+N	0.314+0.039N

### • TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	60
Max flow(m <sup>3</sup> /h)	1.7
Max. working pressure(MPa)	4.9(F1F2)/4.9(F3F4) (optional)
Working temperature(°C)	-196/+200
Volume per channel (L)	0.007(F1F2)/0.007(F3F4)
Weight w/o connection(kg)	0.53+0.034N
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.

### • ACCESSORIES-STUD BOLTS

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

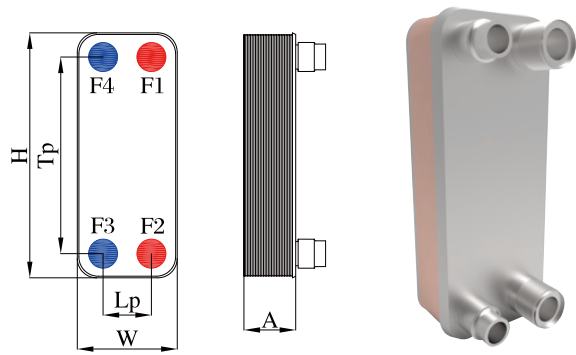
# SANHUA S12B

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(m <sup>3</sup> /h)	1.7
Max. working pressure(MPa)	4.9(F1F2)/4.9(F3F4)
Working temperature(°C)	-196/+200
Volume per channel (L)	0.009(F1F2)/0.009(F3F4)
Weight w/o connection(kg)	0.305+0.030N
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.



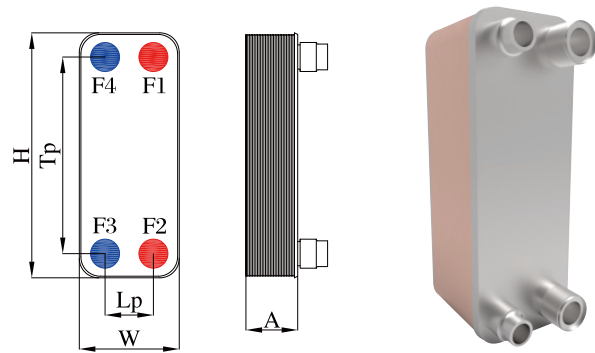
# SANHUA S14B

## 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
<b>H</b>	213	8.39
<b>W</b>	77	3.03
<b>Tp</b>	172	6.77
<b>Lp</b>	42	1.65
<b>A</b>	10+2.15N	0.394+0.085N

### · TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	60
Max flow(m <sup>3</sup> /h)	4
Max. working pressure(MPa)	4.9(F1F2)/4.9(F3F4)
Working temperature(°C )	-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.

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.

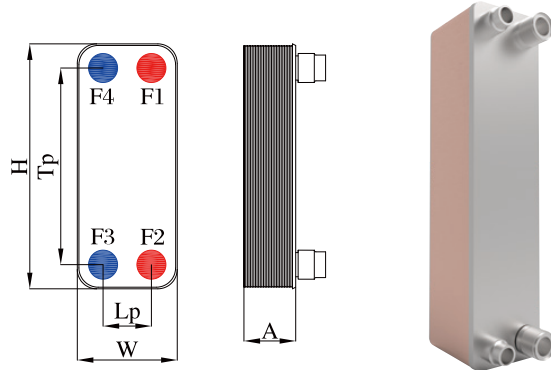
# SANHUA S20

## 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 <sup>3</sup> /h)	4
Max. working pressure(MPa)	3(F1F2)/4.9(F3F4) (optional)
Working temperature(°C)	-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.

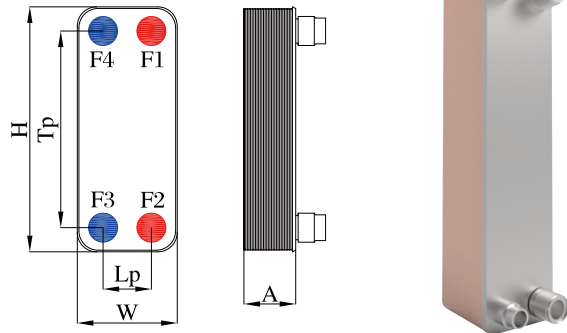
# SANHUA S20B

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 <sup>3</sup> /h)	4
Max. working pressure(MPa)	4.9(F1F2)/4.9(F3F4) (optional)
Working temperature(°C)	-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.

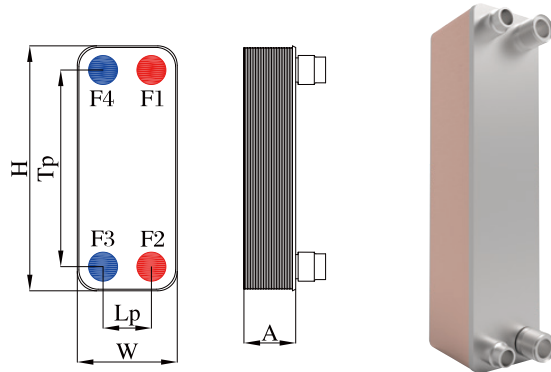
# SANHUA S20C

## 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(m <sup>3</sup> /h)	4
Max. working pressure(MPa)	4.2(F1F2)/4.2(F3F4)
Working temperature(°C )	-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.

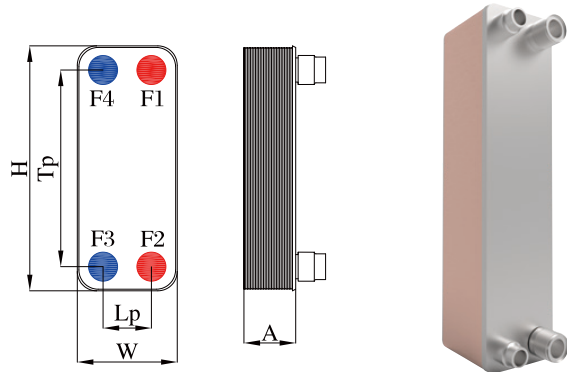
# SANHUA S27C

## 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
<b>H</b>	314	12.52
<b>W</b>	116	2.99
<b>Tp</b>	250	10.94
<b>Lp</b>	50	1.57
<b>A</b>	12+2.25N	0.472+0.088N

### TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	120
Max flow(m <sup>3</sup> /h)	5.5
Max. working pressure(MPa)	4.9(F1F2)/4.9(F3F4)
Working temperature(°C)	-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.

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.

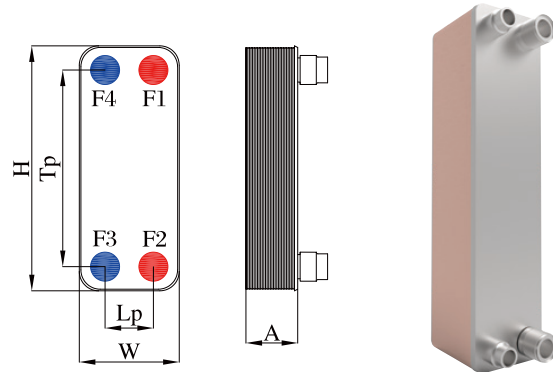
# SANHUA S30A

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 <sup>3</sup> /h)	6
Max. working pressure(MPa)	2.5(F1F2)/4.9(F3F4)
Working temperature(°C)	-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.

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.

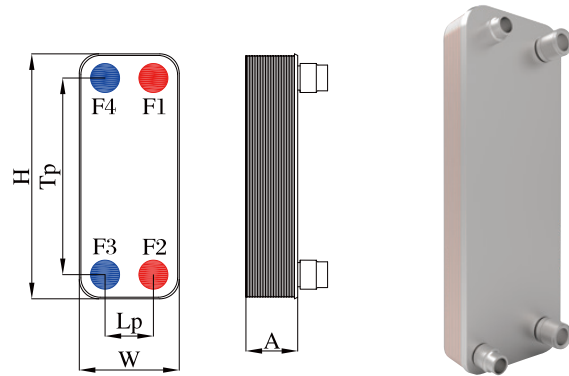
# SANHUA S40A

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
<b>H</b>	332	13.07
<b>W</b>	118	4.65
<b>Tp</b>	279 (F1F2)	10.98
	286 (F3F4)	11.26
<b>Lp</b>	68 (F1F4)	2.68
	75 (F2F3)	2.95
<b>A</b>	10.5+1.53N	0.413+0.06N

## TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	120
Max flow(m <sup>3</sup> /h)	8.8
Max. working pressure(MPa)	2.5(F1F2)/4.9(F3F4)
Working temperature(°C )	-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.

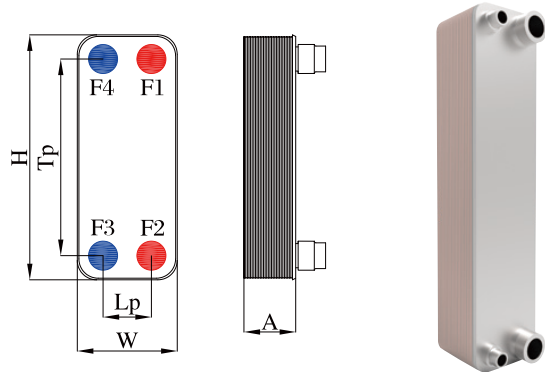
# SANHUA S60

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 <sup>3</sup> /h)	17
Max. working pressure(MPa)	3.0/5.0 (optional)
Working temperature(°C)	-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.



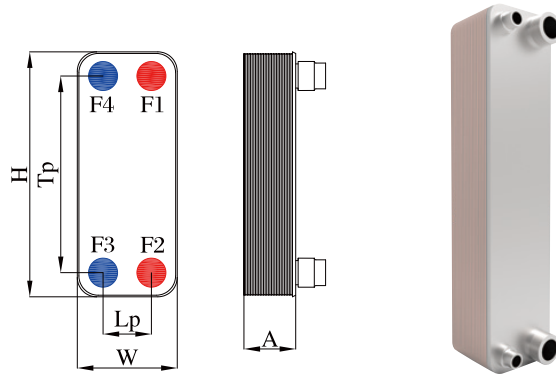
# SANHUA S60B

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
<b>H</b>	526	20.71
<b>W</b>	119	4.69
<b>Tp</b>	470	18.5
<b>Lp</b>	63	2.48
<b>A</b>	13+1.86N	0.512+0.073N

## TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	120
Max flow(m <sup>3</sup> /h)	17
Max. working pressure(MPa)	3(F1F2)/4.9(F3F4) (optional)
Working temperature(°C )	-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.

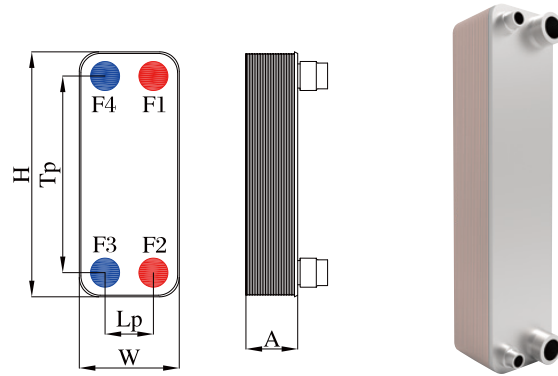
# SANHUA S60C

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 <sup>3</sup> /h)	17
Max. working pressure(MPa)	2.5(F1F2)/4.5(F3F4)
Working temperature(°C )	-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 <sup>3</sup> / <sub>8</sub>
F1-F2 Water side	thread, up to 1 <sup>1</sup> / <sub>4</sub>

**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.

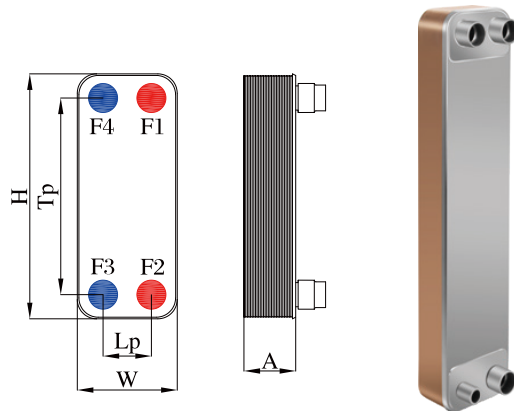
# SANHUA S65A

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
<b>H</b>	534	21.02
<b>W</b>	119	4.69
<b>Tp</b>	476	18.74
<b>Lp</b>	60	2.36
<b>A</b>	12+1.4N	0.472+0.055N

## · TECHNICAL DATA (N=NUMBER OF PLATES)

Max. no. of plates	120
Max flow(m <sup>3</sup> /h)	6
Max. working pressure(MPa)	2.5(F1F2)/3.2(F3F4)
Working temperature(°C)	-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.

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.

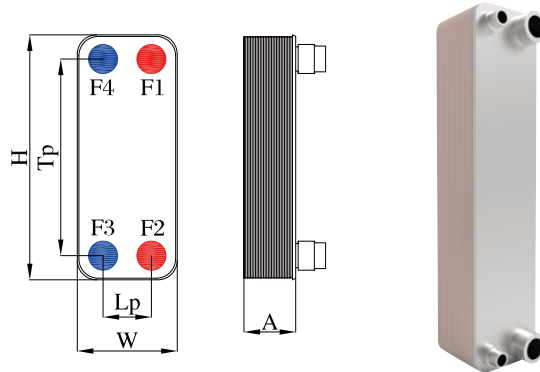
# SANHUA S95B

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 <sup>3</sup> /h)	35
Max. working pressure(MPa)	4.9(F1F2)/4.9(F3F4)
Working temperature(°C)	-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.outlet.



## THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.

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.

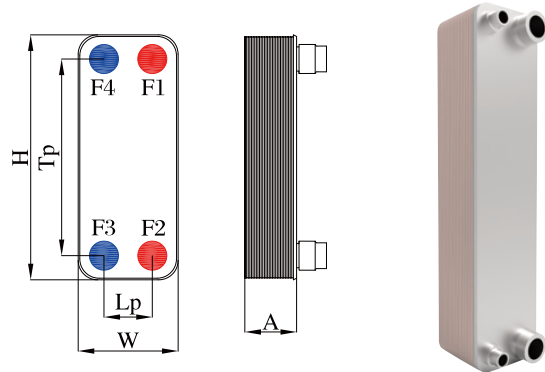
# SANHUA S95C

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 <sup>3</sup> /h)	35
Max. working pressure(MPa)	2.5 (F1F2)/4.9 (F3F4)
Working temperature(°C)	-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.outlet.



## THIRD-PARTY APPROVALS

Europe: Pressure Equipment Directive (PED) III.

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.



**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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