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ZHEJIANG FORWON PLATE HEAT EXCHANGER CO.,LTD

Founded on 13 Oct.2008



Professional Manufacturer of Brazed Plate Heat Exchanger

CE UL KSA ISO9001 ISO14001 IATF16949

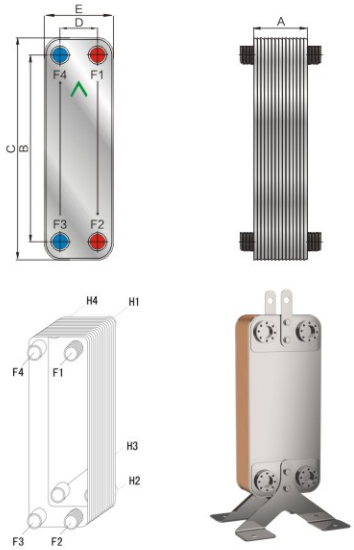
Copper Brazed Series

No:	Model	C(mm)	E(mm)	B(mm)	D(mm)	A(mm)	Max. NO. of plates	Volume (L)	Surface area (m^2)	Weight(Kg)	Channels	Distributor
1	003G	120	55	91	26	8+1.25n	60	0.006/0.006	0.005	0.018n+0.14	H	-
2	006G	128	56	99.5	29	7+1.25n	60	0.006/0.006	0.006	0.018n+0.14	H	-
3	008G	153	75	120	42	9+1.25n	80	0.0085/0.0085	0.01	0.027n+0.40	H	-
4	012	192	73	154	40	9+2.3n	80	0.018/0.018	0.012	0.04n+0.25	H	-
5	012G	195	76	154	40	8+1.03n	80	0.0093/0.0093	0.012	0.034n+0.48	H	-
6	014	205	75	172	42	9+2.27n	80	0.02/0.02	0.014	0.042n+0.52	H、M、L	-
7	014G	205	75	172	42	9+1.43n	80	0.015/0.015	0.014	0.038n+0.52	H	Q
8	014B	195	85	154	42	10+2.3n	60	0.022/0.022	0.014	0.045n+0.4	H	-
9	014C	195	85	154	42	10+2.3n	60	0.022/0.022	0.014	0.045n+0.4	H	-
10	017FX	180	97	143.9	60.5	9.5+1.25n	100	0.017/0.011/	0.017	0.04n+0.5	H	Q
11	018	229	88	182	43	9+2.27n	80	0.036/0.036	0.018	0.052n+0.62	H	-
12	020G	312	76	278	42	8+1.25n	80	0.02/0.02	0.02	0.055n+0.58	H	-
13	022	318	75	278	42	9+2.27n	80	0.04/0.04	0.022	0.065n+0.7	H、M、L	-
14	023FX	220	120	177	68/75	9.5+1.25n	150	0.025/0.017	0.023	0.058n+0.85	H	Q
15	028	311	111	250	50	10+2.27n	150	0.05/0.05	0.028	0.085n+1.15	H、M、L	-
16	029FS	325	95	270	45	9+0.97n	150	0.024/0.013	0.029	0.058n+0.98	H	Q
17	030	325	95	269	39	9+1.52n	150	0.028/0.028	0.03	0.08n+1.0	H	Q
18	030F	325	95	269	39	9+1.52n	150	0.035/0.027	0.03	0.08n+1.0	H	Q
19	030B	300	120	250	70	9.5+2.27n	150	0.06/0.06	0.03	0.09n+1.2	H、M、L	Q
20	033FS	365	95	318	48	9+1.28n	150	0.028/0.022	0.033	0.081n+1.02	H	Q
21	033FX	365	95	318	48	9+1.28n	150	0.026/0.024	0.033	0.081n+1.02	H	Q
22	039FSA	332	121	286/279	68/75	10+1.05n	150	0.031/0.02	0.039	0.092n+1.2	H	Q
23	039FX	332	121	286/279	68/75	12+1.25n	150	0.038/0.034	0.039	0.092n+1.5	H	Q
24	040G	332	121	286/279	68/75	10+1.53n	150	0.036/0.036	0.04	0.1n+1.2	H	Q
25	042G	378	121	329	72	10+1.53n	150	0.043/0.043	0.042	0.12n+1.45	H	Q
26	043F	332	121	286/279	68/75	10+1.53n	150	0.048/0.036	0.043	0.1n+1.2	H	Q
27	045FS	378	121	329	72	10+1.68n	150	0.057/0.046	0.045	0.12n+1.45	H	Q
28	052	527	111	466	50	11.5+2.27n	150	0.094/0.094	0.052	0.16n+2.05	H、M、L	Q
29	052FX	527	111	476	60	11.5+1.83n	150	0.082/0.074	0.052	0.143n+2.05	H	Q
30	059FS	539	123	476	60	11.5+1.38n	150	0.070/0.058	0.059	0.153n+2.19	H	Q
31	060	527	120	470	63	11.5+2.27n	150	0.111/0.111	0.06	0.17n+2.2	H	Q
32	060F	527	120	470	63	11.5+2.27n	150	0.126/0.096	0.06	0.17n+2.2	H	Q
33	060FX	527	120	470	63	11.5+1.63n	150	0.084/0.078	0.06	0.145n+2.2	H	Q
34	060B	527	120	479	72	11.5+2.27n	150	0.111/0.111	0.06	0.17n+2.15	H	Q
35	085G	527	120	470	63	11.5+1.83n	150	0.093/0.093	0.065	0.145n+2.2	H	Q
36	085FS	527	120	470	63	11.5+1.83n	150	0.11/0.076	0.065	0.145n+2.2	H	Q
37	086P	426	204	354	126	17+2.0n	200	0.1169/0.1106	0.086	0.44n+11.35	H	-
38	088FS	496	162	432/426	88/102.5	12.5+1.97n	200	0.132/0.114	0.088	0.21n+3.5	H	Q
39	090	567	189	479	101	14+2.36n	250	0.193/0.193	0.090	0.36n+5	H	Q
40	095FS	616	189	515/519	92/98	14+1.82n	250	0.165/0.135	0.095	0.3n+5.35	H	Q
41	095B	611	186	519	92	14+2.76n	250	0.25/0.25	0.095	0.38n+5.25	H	-
42	097FS	616	189	515/519	92/98	14+2.05n	250	0.189/0.163	0.11	0.3n+5.35	H	Q
43	115	376	366	284.5	274.5	16+2.31n	250	0.22/0.22	0.115	0.45n+15.5	H	-
44	120G	530	250	450	163.5	15+2.27n	250	0.241/0.241	0.12	0.35n+8.25	H	Q
45	120T	530	250	456	174	15+2.27n	250	0.241/0.241	0.12	0.35n+8.25	H	-
46	136	490	250	378	138	16+2.76n	250	0.25/0.25	0.136	0.37n+8.4	H、M、L	Q
47	210	739	322	603	188	16+2.76n	300	0.4/0.4	0.21	0.78n+14.5	H	Q
48	210G	737	320	597	179	16+2.12n	300	0.376/0.376	0.25	0.61n+14.5	H	Q
49	310	985	370	815	200	24+2.76n	300	0.65/0.65	0.31	1.2n+24.3	H、M、L	Q

Technical Dimension Data

Dual-Circuits													
No:	Model	C(mm)	E(mm)	B(mm)	B1(mm)	D(mm)	D1(mm)	A(mm)	Max. NO. of plates	Surface area(m^2)	Weight(Kg)	Channels	Distributor
50	FHC110G	489	249	391.4	379.2	157.2	163.7	14+2.22n	0.16/0.16	0.110	0.32n+6.5	HD(Diagonal)	Q
51	FHC110FS	489	249	400	369	155	166	14+2.12n	0.2/0.16	0.110	0.32n+6.5	HD(Diagonal)	Q
52	FHC110F	489	249	400	369	155	166	14+2.12n	0.2/0.16	0.110	0.32n+6.5	HD(Diagonal)	Q
53	FHC110FX	489	249	400	369	155	166	14+1.50n	0.17/0.13	0.110	0.285n+6.5	HD(Diagonal)	Q
54	FHC122F	525	243	449	390	160	174	15+1.87 n	0.207/0.175	0.122	0.34n+6.5	HD(Parallel)	Q
55	FHC132FS	527	291	398	397	177	182	15+2.17n	0.265/0.227	0.132	0.4n+10.3	HD(Parallel)	Q
56	FHC210HDQ	739	322	599	628	211	232	16+2.76n	0.400/0.400	0.210	0.8n+14.5	HD(Diagonal)	Q

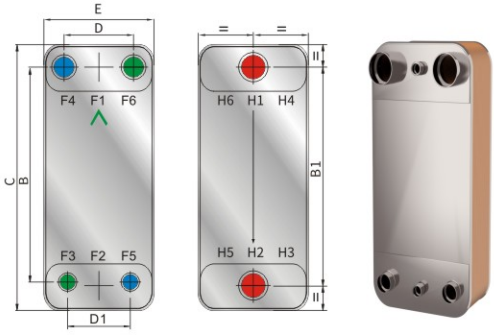
Single Circuit



Main Function & Characteristics:

- **Efficient and energy-saving**
  Can be suitable for environment-protecting refrigerant suchas R410A, R32, R290, R744, etc .
- **To be stable and reliable**
  Using high-quality stainless steel 316L&304, the optimized flow channel design has strong corrosion resistance, and more ideally controls fluctuations in overheating.
- **Patent technology**
  Unique distributor design optimization, higher COP, more uniform distribution, lower cost.

Dual Circuits



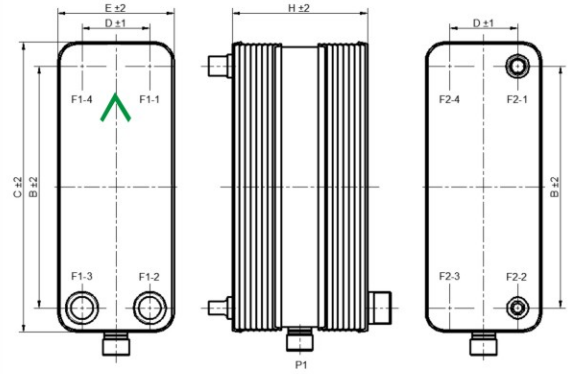
Main Function & Characteristics:

The patented pure dual system combines two compressors with separate refrigerant circuits. The main advantages are:

- Asymmetrical flow channel design reduces refrigerant flow channel volume and increases water flow channel volume to reduce water flow resistance.
- Improving heat exchanger energy efficiency, reducing the number of plates by 15%-30%.
- Original distributor makes refrigerant distribution more uniform and operation more reliable and stable.

Air Dryer Series





Technical Dimension Data（ISO4）

Air side：P=7bar(G)，T_{dew}=3°C，△P=25KPa，
T_{in}=35°C，T_{out}=27°C

Refrigerant Side：R134a，T_{evap}=0°C，SH=5K

Technical Dimension Data（ISO5）

Air side：P=7bar(G)，T_{dew}=7°C，△P=45KPa，
T_{in}=35°C，T_{out}=27°C

Refrigerant Side：R134a，T_{evap}=0°C，SH=5K

No.	Air flow 7barG			Model	热回收片数	Evaporator	C(mm)	E(mm)	B(mm)	D(mm)	H(mm)	Refrigerant Connection	Air Connection	Drain Connection
	Nm^3/min	Nm^3/hr	SCFM											
1	0.6	37	22	FHC014Z	9	7	205	75	172	42	2.27n+6+40	3/8"/3/8"	1/2"	R1/2"
2	0.9	55	32	FHC014Z	15	11	205	75	172	42	2.27n+6+40	3/8"/1/2"	5/8"	R1/2"
3	1.0	60	36	FHC014Z	17	13	205	75	172	42	2.27n+6+40	3/8"/1/2"	3/4"	R1/2"
4	1.2	72	42	FHC014Z	19	15	205	75	172	42	2.27n+6+50	3/8"/1/2"	5/8"	R1/2"
5	1.6	96	56	FHC014Z	23	19	205	75	172	42	2.27n+6+50	3/8"/1/2"	5/8"	R1/2"
6	2.0	120	71	FHC30BZ	15	13	300	120	250	70	2.27n+8+60	1/2"/5/8"	1-1/8"	R1/2"
7	2.5	147	86	FHC30BZ	19	17	300	120	250	70	2.27n+8+60	1/2"/5/8"	1-1/8"	R1/2"
8	3.0	182	107	FHC30BZ	21	19	300	120	250	70	2.27n+8+60	1/2"/5/8"	1-1/8"	R1/2"
9	3.6	213	125	FHC30BZ	25	21	300	120	250	70	2.27n+8+80	1/2"/5/8"	1-1/8"	R1/2"
10	4.1	244	143	FHC30BZ	31	27	300	120	250	70	2.27n+8+80	1/2"/5/8"	1-1/8"	R1/2"
11	4.7	284	167	FHC30BZ	35	31	300	120	250	70	2.27n+8+100	1/2"/5/8"	1-3/8"	R1/2"
12	5.0	300	177	FHC30BZ	37	33	300	120	250	70	2.27n+8+100	1/2"/5/8"	1-3/8"	R1/2"
13	5.4	325	190	FHC30BZ	43	39	300	120	250	70	2.27n+8+100	1/2"/5/8"	1-3/8"	R1/2"
14	6.0	360	212	FHC30BZ	47	43	300	120	250	70	2.27n+8+120	1/2"/5/8"	1-3/8"	R1/2"
15	6.7	400	235	FHC30BZ	55	51	300	120	250	70	2.27n+8+120	1/2"/5/8"	1-3/8"	R1/2"
16	7.1	425	250	FHC136Z	17	13	490	250	378	138	2.76n+16+70	1/2"/1-3/8"	2-1/2"	R1"
17	8.3	500	300	FHC136Z	21	17	490	250	378	138	2.76n+16+70	1/2"/1-3/8"	2-1/2"	R1"
18	11.7	700	400	FHC136Z	27	23	490	250	378	138	2.76n+16+120	1/2"/1-3/8"	2-1/2"	R1"
19	14.2	850	500	FHC136Z	31	27	490	250	378	138	2.76n+16+120	1/2"/1-3/8"	2-1/2"	R1"
20	15.0	900	530	FHC136Z	33	29	490	250	378	138	2.76n+16+120	1/2"/1-3/8"	2-1/2"	R1"
21	16.7	1000	600	FHC136Z	35	31	490	250	378	138	2.76n+16+150	1/2"/1-3/8"	2-1/2"	R1"
22	20.0	1200	700	FHC136Z	41	37	490	250	378	138	2.76n+16+150	1/2"/1-3/8"	2-1/2"	R1"
23	23.3	1400	825	FHC136Z	47	43	490	250	378	138	2.76n+16+200	1/2"/1-3/8"	2-1/2"	R1"
24	25.0	1500	883	FHC136Z	51	47	490	250	378	138	2.76n+16+200	1/2"/1-3/8"	3"	R1"
25	28.3	1700	1000	FHC136Z	55	51	490	250	378	138	2.76n+16+200	1/2"/1-3/8"	3"	R1"

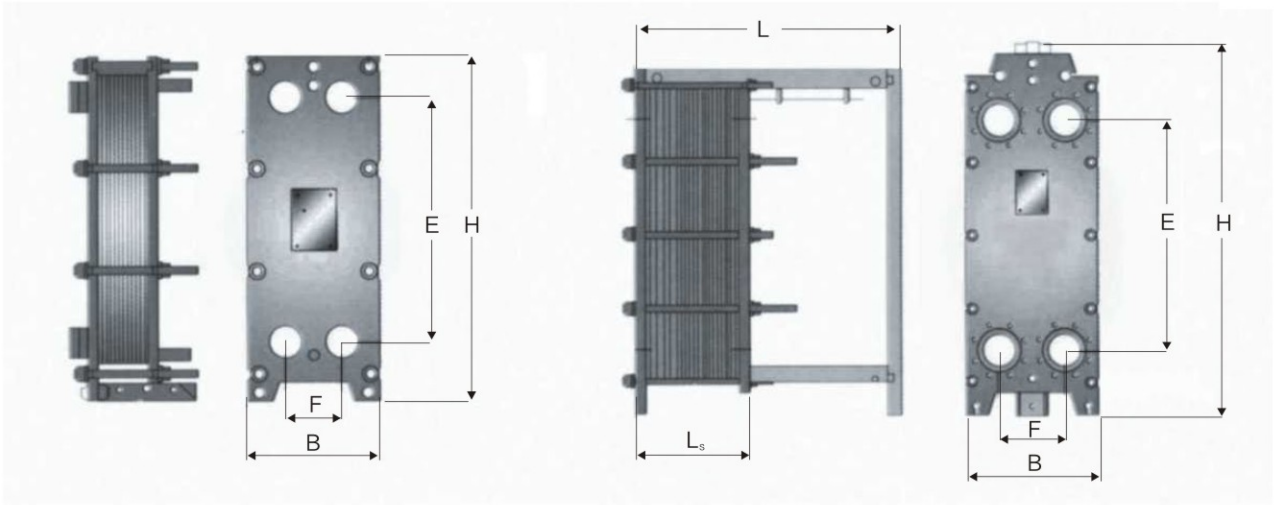
Stainless Steel Fusion Welded Series

- **Pure Material & Technology**: This product adopts entire stainless steel with vacuum fusion welding technology.
- **Application**: Suitable for the field where copper use is prohibited (such as food, purified water, laser and other fields).
- **High efficiency**: High heat transfer coefficient.
- **Reliability**: Strong corrosion resistance, withstanding high pressure & high temperature, Long service life.
- **Low fouling coefficient**: High turbulence reduces the fouling factor, thus reducing the frequency of cleaning.



Stainless Steel Fusion Welded Series														
No:	Model	C(mm)	E(mm)	B(mm)	D(mm)	A(mm)	Max. NO. of plates	Interface Size	Maximum Pressure (Mpa)	Maximum Flow (m^3/h)	Volume (L)	Surface area(m^2)	Channels	Distributor
1	FHR003G	120	55	91	26	8+1.25n	60	1/2"	3.0	1	0.006	0.005	H	-
2	FHR008G	153	75	120	42	10+1.25n	80	3/4"	3.0	3.6	0.0085	0.01	H	-
3	FHR012	192	73	154	40	11+2.3n	80	3/4"	3.0	3.6	0.018	0.012	H	-
4	FHR014	205	75	172	42	12+2.27n	80	3/4"	3.0	5	0.02	0.014	H	-
5	FHR022	318	75	278	42	12+2.27n	80	3/4"	3.0	4.5	0.04	0.022	H	-
6	FHR028	311	111	250	50	13+2.27n	150	1"1/4	3.0	13	0.05	0.028	H	-
7	FHR030B	300	120	250	70	14+2.27n	150	1"	3.0	9	0.06	0.03	H	-
8	FHR052	527	111	466	50	12+2.27n	150	1"1/4	2.5	13	0.094	0.052	H	Q
9	FHR060	527	120	470	63	12.5+2.27n	150	1"1/4	2.5	13	0.111	0.06	H	Q
10	FHR095B	611	186	519	92	16+2.76n	150	2"	2.0	35	0.25	0.095	H	-
11	FHR097GS	616	189	515/519	92/98	16+2.05n	200	2"	2.0	35	0.176	0.097	H	Q
12	FHR120G	530	250	450	163.5	15+2.27n	180	2"1/2	2.0	35	0.241	0.12	H	Q
13	FHR136	490	250	378	138	16+2.76n	150	3"	1.5	77	0.25	0.136	H	Q
14	FHR210G	737	320	597	179	16+2.12n	180	4"	1.5	130	0.376	0.21	H	Q

Gasket Plate Heat Exchanger



Model	Connection size (mm)	Max flow rate (m^3/H)	H (Height)	B (Width)	E (Center distance)	F (Center distance)	Max weight (KG)
FHU523-MQ	32	14	530	185	357	60	96
FHU550A-MQ	50	36	630	300	395	124	130
FHU550-MQ	50	36	920	320	640	140	250
FHU550-MZ	50	36	920	320	640	140	250
FHU550-BQ	50	36	920	320	640	140	250
FHU565S-BZ	50	36	920	320	640	140	250
FHU565S-MQ	65	60	680	400	380	202	500
FHU565S-MZ	65	60	680	400	380	202	500
FHU600-MQ	100	140	1045	454	719	225	1500
FHU600-MZ	100	140	1069	470	719	225	1500
FHU600-BQ	100	140	1045	454	719	225	1500
FHU650-BZ	100	140	1069	470	719	225	1500
FHU650-MQ	150	360	1815	610	1286	290	4000
FHU650-MZ	150	360	1815	610	1286	290	4000
FHU650-BQ	150	360	1815	610	1286	290	3000
FHU650-BZ	150	360	1815	610	1286	290	3000
FHU650S-MQ	150	360	1200	610	690	290	2200
FHU650S-MZ	150	360	1200	610	690	290	2200
FHU700-MQ	200	600	2200	780	1478	338	5500
FHU700-MZ	200	600	2200	780	1478	338	5500
FHU700-BQ	200	600	2200	780	1478	338	4000
FHU700-BZ	200	600	2200	780	1478	338	4000
FHU700S-MQ	200	600	1450	760	728	338	4000
FHU700S-MZ	200	600	1450	760	728	338	4000
FHU750-BQ	250	883	2680	910	1939	440	8500
FHU750-BZ	250	883	2680	910	1939	440	8500
FHU800-MQ	300	1300	2730	1150	1842	596	12000
FHU80-MZ	300	1300	2730	1150	1842	596	12000
FHU850-MQ	350	1730	2730	1150	1842	596	12000
FHU850-MZ	350	1730	2730	1150	1842	596	12000

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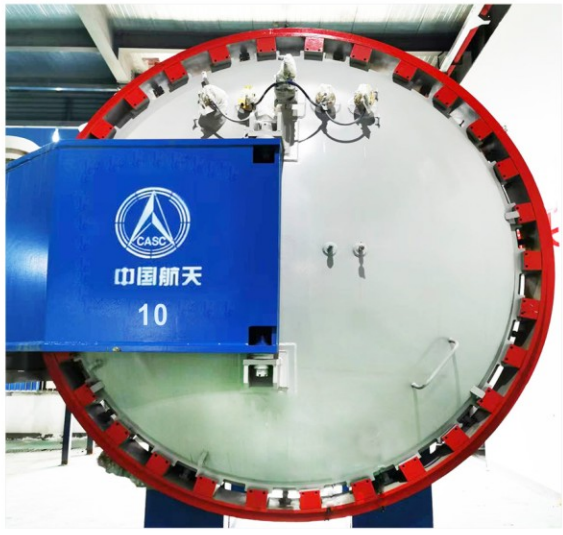
HELIUM LEAKAGE TESTING MACHINES



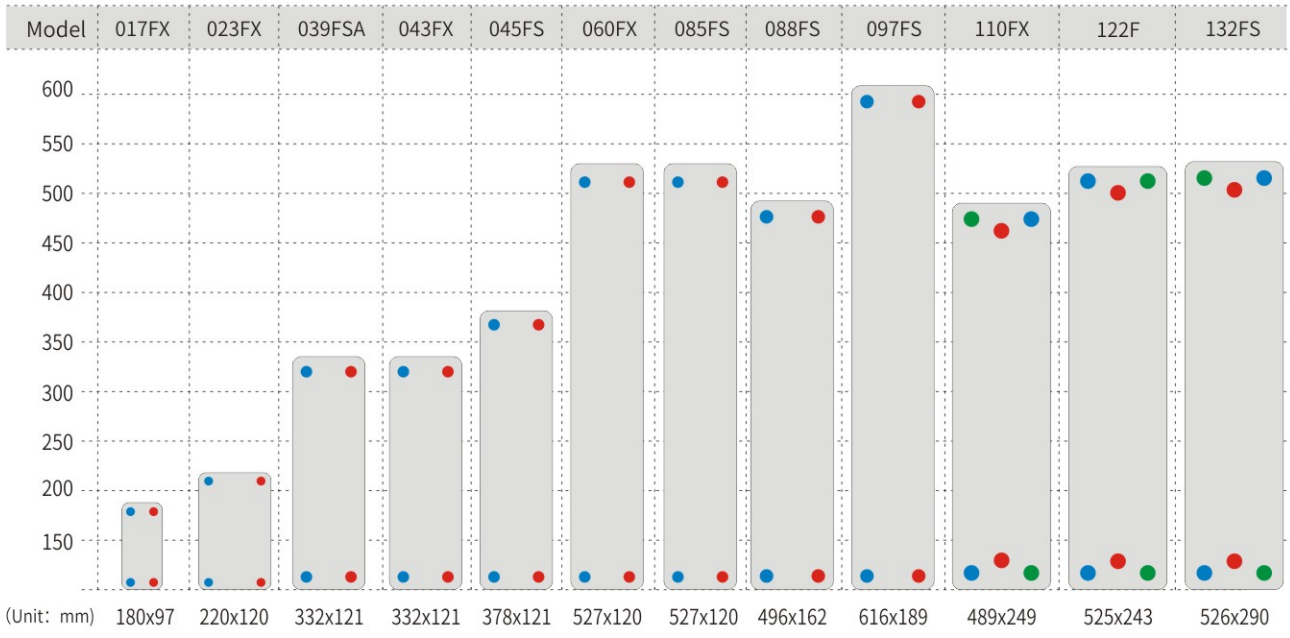
AUTOMATIC PRODUCTION LINES



BRAZING FURNACE(OVEN)



ASYMMETRIC FLOW PATH BRAZED PLATE HEAT EXCHANGER





Heat Pump



Energy Storage Liquid Cooling



Chiller

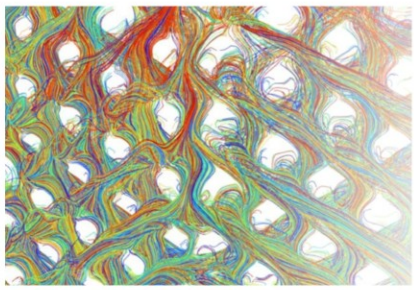


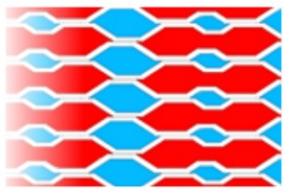
Data Center

PATENT DESIGN

- **Asymmetric Design**: Asymmetric flow channel design enhances refrigerant heat capacity and reduces water flow resistance.
- **High Efficiency & Energy Savings**: High heat flux density enables efficient heat transfer.
- **Diverse Corrugation Patterns**: Transverse multi-V corrugations, curved corrugations, dimpled corrugations, etc.
- **Lightweight Design**: Low liquid holdup volume reduces refrigerant charge.
- **Anti-Freeze Design**: Ice crystals form away from sensitive areas.
- **Suitable Operating Conditions**: Compatible with new environmentally friendly refrigerants such as R32 and R290.







Asymmetric Flow Channels

- The pioneering "S-Series transverse multi-V corrugations" and "X-Series curved corrugations" enhance energy and momentum exchange between fluid micro-elements, improving heat transfer efficiency.
- Turbulent flow can be achieved even with a low refrigerant charge, and the flow channels are highly variable.
- Suitable for applications with unequal flow rates.

Environmental-friendly Refrigerant

Forward-looking research and development focused on next-generation refrigerants. As one of the innovation drivers in R290 heat exchanger solution development, Forwon has experiences in the development and application of new low-GWP refrigerant products, meeting the goals of sustainable development.

Innovative Distributor

- The innovative vortex jet distribution structure ensures uniform refrigerant distribution across the flow channels.
- It maintains pressure drop within a reasonable range to minimize the impact of temperature glide on heat exchange performance.

Safe & Reliable

- Excellent strength design to meet demanding operating conditions.
- Innovative flow channel plate design meet high-temperature and high-pressure application requirements.
- Thinner and fewer plates consume less raw material.
- Reduces energy consumption, lowers refrigerant charge, and extends equipment service life.

Guaranteed Anti-Freeze Safety & Security

- Controlled and non-destructive freezing.
- Allows ice crystals to form away from sensitive areas under certain operating conditions.
- This design simultaneously ensures the product's heat transfer performance and service life.

Value-added Services

- A professional technical team and comprehensive after-sales service system.
- Provides full-process services from product selection, solution design, technical support, to installation and commissioning.
- A wide range of accessories and customized services to meet diverse customer needs.

SCHEMATIC DIAGRAM OF PRODUCT STRUCTURE OF BRAZED PLATE HEAT EXCHANGER

The brazed plate heat exchanger is made of stamped stainless steel plates (316L & 304) and brazing materials (copper foil, nickel foil, all -stainless steel) which will brazed together in a high-vacuum furnace. During assembly, every two plates are rotated 180 degrees relative to each other, forming two flow channels. The plate pattern design creates a high level of turbulence in the fluid, ensuring efficient heat transfer. The temperature design for copper brazed is -196°C to 225°C.The temperature design for all-stainless steel fusion-welded design is -196°C to 550°C.

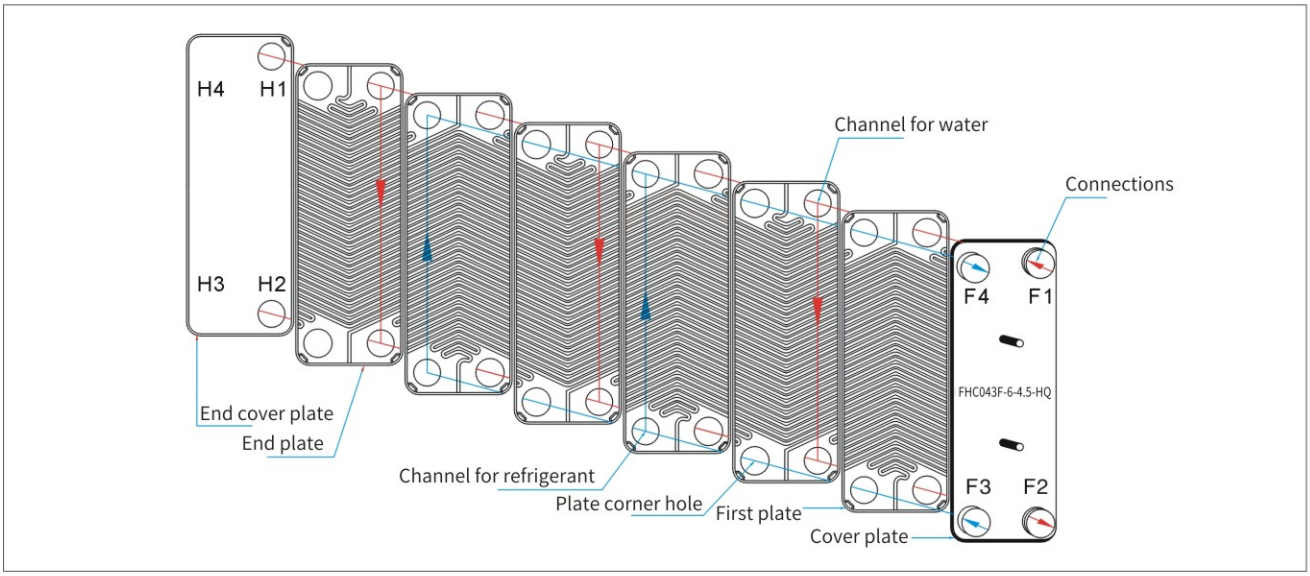


PLATE STRUCTURE

H Channel: A channel composed of adjacent plates with a large angle.
M Channel: A channel composed of a mix of adjacent plates with large and small angles.
L Channel: A channel composed of adjacent plates with a small angle.





H Channel Characteristics & Applications:

- **High Heat Transfer Coefficient**: The H channel design enables efficient heat transfer.
- **High Flow Resistance**: Due to the channel structure, fluid encounters significant resistance when flowing through the H channel.
- **Applicable Conditions**: Suitable for applications with small flow rates requiring efficient heat transfer, such as: high specific heat capacity fluids, phase-change heat transfer processes, and large temperature difference conditions.
- **Typical Application**: Phase-change heat transfer processes for refrigerants.



M Channel Characteristics & Applications:

- The heat transfer coefficient and flow resistance are between those of the H and L channels.



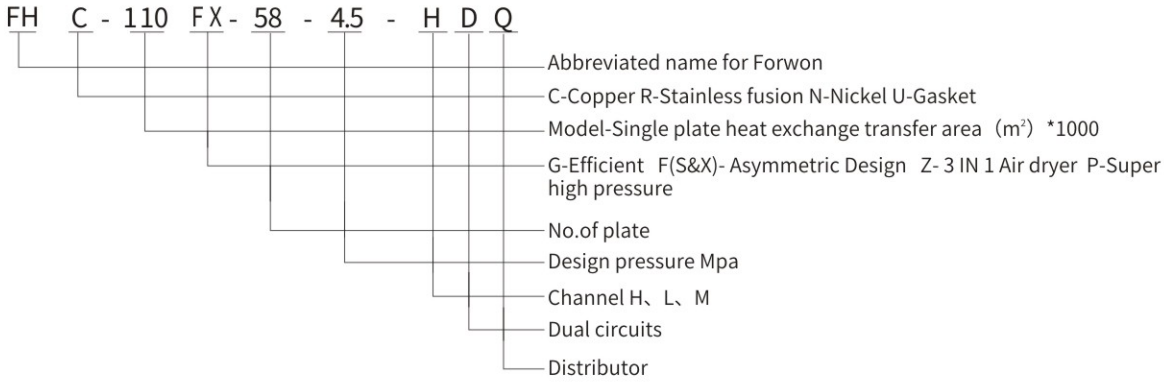
L Channel Characteristics & Applications:

The L channel is suitable for scenarios with lower heat transfer requirements.

- **Low Flow Resistance**: Due to the channel structure, fluid encounters low resistance when flowing through the L channel.
- **Applicable Conditions**: Suitable for applications with large flow rates and lower heat transfer requirements, such as low specific heat capacity fluids and small temperature difference conditions.
- **Typical Application**: Air heat transfer processes under ambient pressure.

PRODUCT MODEL REPRESENTATION METHOD

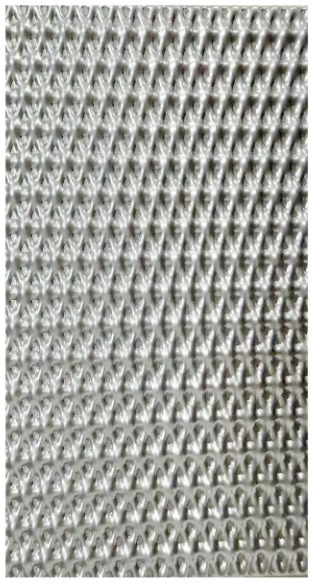
Forwon Brazed Plate Heat Exchanger is applied in Water, Ethylene Glycol, Oil, and various HFC, HCFC, HC and HFO refrigerants,e.g. R22、R410A、R290、R32、 R454B、R134A、R404A、R407C、 R507、R448A、R449A、 R452A 、R744、R1234yf、R513A.



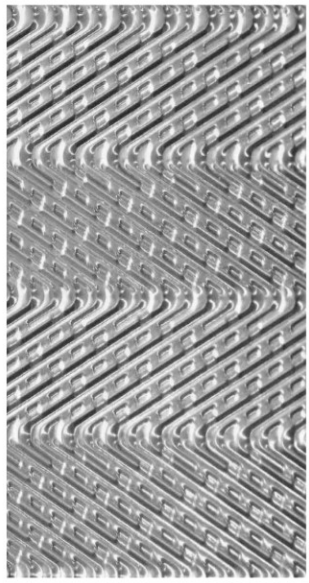
INNOVATIVE PRODUCT



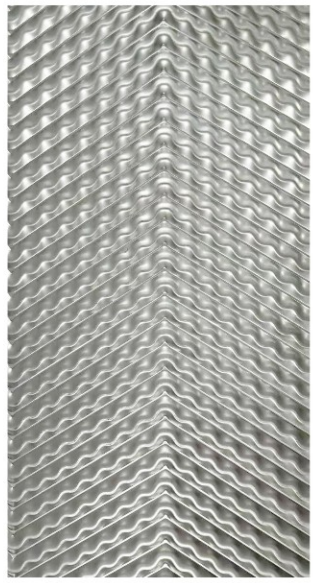
Traditional Herringbone Corrugation



Dimpled Corrugation – FD Series



Transverse Multi-V Corrugation – FS Series



Curved Corrugation – FX Series



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