



**Heat Transfer Group, Inc.**

[www.heattransfergroup.com](http://www.heattransfergroup.com)

**Heat Transfer Group, Inc.**  
**2211-C Fifth Avenue**  
**Ronkonkoma, NY 11779**

**Brazed Plate Heat Exchangers – Product Data Sheet**

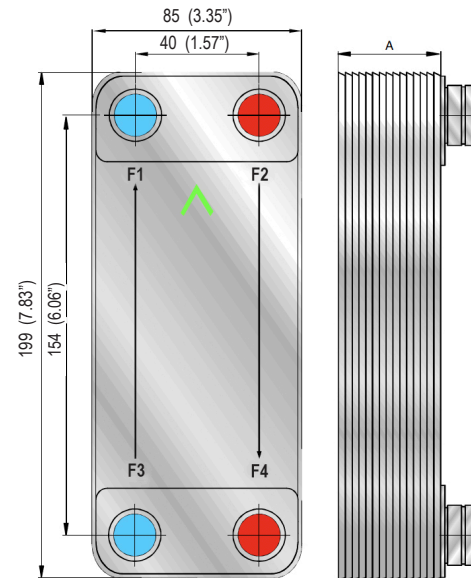
Phone: 631-651-2660 • Fax: 631-651-2665 • E-Mail: [sales@heattransfergroup.com](mailto:sales@heattransfergroup.com)

**MODEL: HTG013A**



**Technical Dimension Data**

<b>Design Pressure</b>	3.0MPa	435 psi
<b>Testing Pressure</b>	4.5MPa	653 psi
<b>Design Temperature</b>	-194C to 200C	-321F to 392F
<b>Maximum flow</b>	4m <sup>3</sup> /h	18 GPM
<b>Max Pipe Size</b>	3/4"	7/8"
<b>Channel</b>	H	



Model	MAX Plates (n)	Depth - High Pressure		Depth - Standard Pressure		Weight	
		A - mm	A - inches	A - mm	A - inches	kg	lbs.
HTG013A	60	N/A	N/A	13+2.3n	0.51+.09n	1.0+.065n	2.2+0.14n
		Volume - F1/F3		Volume - F2/F4		HX Area	
		Liters	Gallons	Liters	Gallons	m <sup>2</sup>	ft <sup>2</sup>
		0.02*1/2n	0.005*1/2n	0.02*1/2n	0.005*1/2n	(n-2)*0.013	(n-2)*0.140

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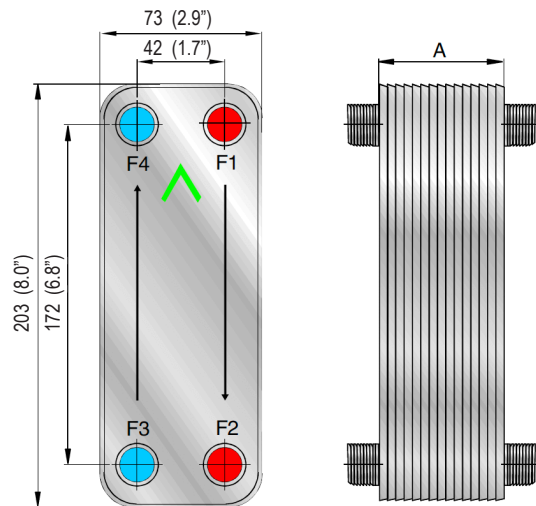
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**MODEL: HTG014**



Technical Dimension Data		
Design Pressure	3.0MPa / 4.5 Mpa	435 psi / 653 psi
Testing Pressure	4.5Mpa/6.75Mpa	653 psi / 979 psi
Design Temperature	-196~200°C	-321F to 392F
Maximum flow	4m <sup>3</sup> /h	18 GPM
Max Pipe Size	3/4" (NPT)	7/8" (swt.)
Channel	H,M,L	



Model	MAX Plates (n)	Depth - High Pressure		Depth - Standard Pressure		Weight	
		A - mm	A - inches	A - mm	A - inches	kg	lbs.
HTG014	60	11+2.3n	0.43+09n	9+2.3n	0.35+.09n	0.5+0.05n	1.1+0.11n
		Volume - F1/F2		Volume - F3/F4		HX Area	
		Liters	Gallons	Liters	Gallons	m <sup>2</sup>	ft <sup>2</sup>
		0.04*1/2n	0.01*1/2n	0.04*(1/2n-1)	0.01*(1/2n-1)	(n-2)*0.014	(n-2)*0.151

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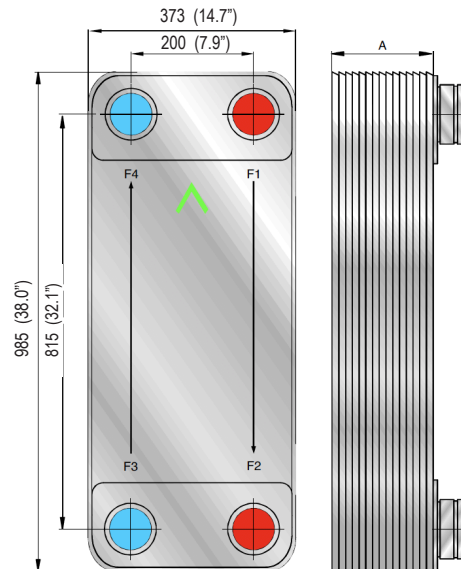
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**MODEL: HTG310**



**Technical Dimension Data**

<b>Design Pressure</b>	2.50Mpa	363 psi
<b>Testing Pressure</b>	3.70 Mpa	573 psi
<b>Design Temperature</b>	-194C to 200C	-321F to 392F
<b>Maximum flow</b>	150 m3/h	660 GPM
<b>Max Pipe Size</b>	4" (NPT)	4-1/8" (swt.)
<b>Channel</b>	H	



Model	MAX Plates (n)	Depth - High Pressure		Depth - Standard Pressure		Weight	
		A - mm	A - inches	A - mm	A - inches	kg	lbs.
HTG310	300	N/A	N/A	20+2.85N	0.79+.11n	31+1.2n	68.2+2.64n
		Volume - F1/F2		Volume - F3/F4		HX Area	
		Liters	Gallons	Liters	Gallons	m2	ft2
		0.65*1/2n	0.171*1/2n	0.65*(1/2n-1)	0.171*(1/2n-1)	(n-2)*0.310	(n-2)*3.337

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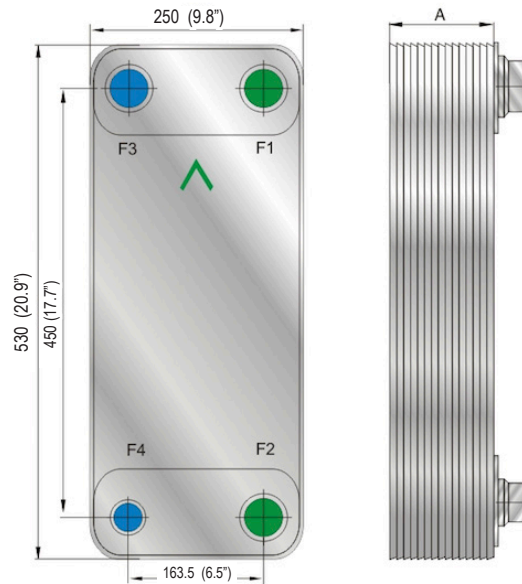
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**MODEL: HTG120G**



**Technical Dimension Data**

<b>Design Pressure</b>	3.0MPa / 4.5 Mpa	435 psi / 653 psi
<b>Testing Pressure</b>	4.5Mpa/6.75Mpa	653 psi / 979 psi
<b>Design Temperature</b>	-194~200°C	-321F to 392F
<b>Maximum flow</b>	45m <sup>3</sup> /h	200 GPM
<b>Max Pipe Size</b>	2-1/2" (NPT)	2-3/8" (swt.)
<b>Channel</b>	H	



Model	MAX Plates (n)	Depth - High Pressure		Depth - Standard Pressure		Weight	
		A - mm	A - inches	A - mm	A - inches	kg	lbs.
<b>HTG120G</b>	200	15+2.4n	0.59+094n	13+2.4n	0.51+.094n	7.0+0.40n	16.8+0.88n
		Volume - F1/F2		Volume - F3/F4		HX Area	
		Liters	Gallons	Liters	Gallons	m <sup>2</sup>	ft <sup>2</sup>
		0.24*1/2n	0.063*1/2n	0.24*(1/2n-1)	0.063*(1/2n-1)	(n-2)*0.120	(n-2)*1.129

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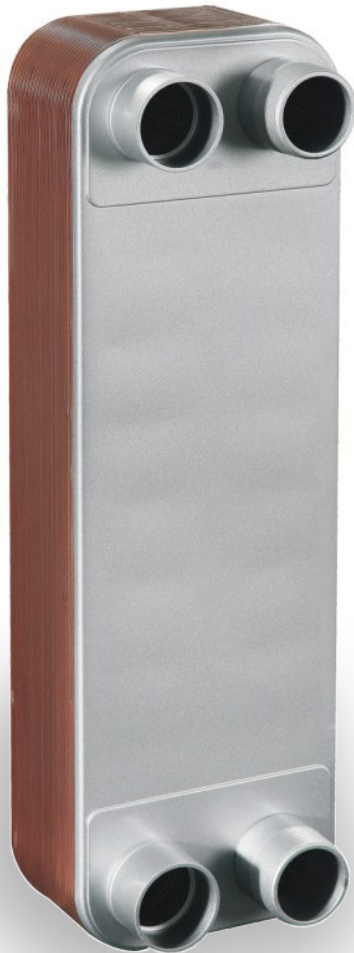
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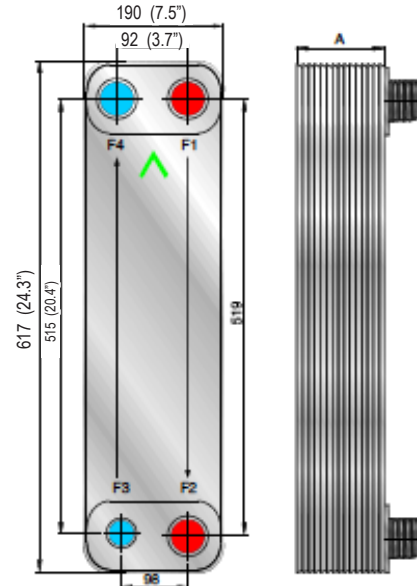
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**MODEL: HTG095**



**Technical Dimension Data**

<b>Design Pressure</b>	3.0MPa / 4.5 Mpa	435 psi / 653 psi
<b>Testing Pressure</b>	4.5Mpa/6.75Mpa	653 psi / 979 psi
<b>Design Temperature</b>	-194C to 200C	-321F to 392F
<b>Maximum flow</b>	35m3/h	154 GPM
<b>Pipe Size</b>	2" (NPT)	2-1/8" (swt.)
<b>Channel</b>	H,M,L	



Model	MAX Plates (n)	Depth - High Pressure		Depth - Standard Pressure		Weight	
		A - mm	A - inches	A - mm	A - inches	kg	lbs.
HTG095	250	15+2.4n	0.59+0.94n	11+2.4n	0.43+.094n	4.6+0.44n	10.1+0.97n
		Volume - F1/F2		Volume - F3/F4		HX Area	
		Liters	Gallons	Liters	Gallons	m2	ft2
		0.21*1/2n	0.055*1/2n	0.21*(1/2n-1)	0.055*(1/2n-1)	(n-2)*0.095	(n-2)*1.023

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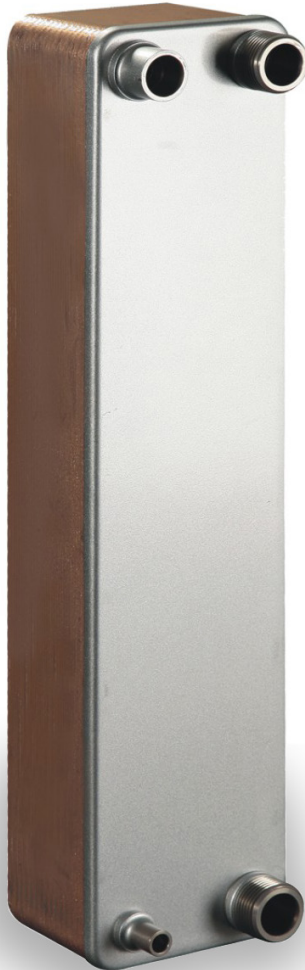
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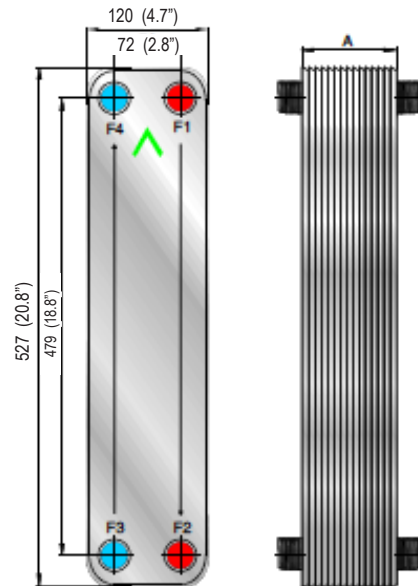
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**MODEL: HTG060B**



Technical Dimension Data		
Design Pressure	3.0MPa / 4.5 Mpa	435 psi / 653 psi
Testing Pressure	4.5Mpa/6.75Mpa	653 psi / 979 psi
Design Temperature	-194C to 200C	-321F to 392F
Maximum flow	12m3/h	52 GPM
Pipe Size	1-1/4" (NPT)	1-3/8" (swt.)
Channel	H	



Model	MAX Plates (n)	Depth - High Pressure		Depth - Standard Pressure		Weight	
		A - mm	A - inches	A - mm	A - inches	kg	lbs.
HTG060B	120	11+2.3n	0.43+09n	9+2.3n	0.35+09n	2.4+0.20n	5.28+0.43n
		Volume - F1/F2		Volume - F3/F4		HX Area	
		Liters	Gallons	Liters	Gallons	m2	ft2
		0.11*1/2n	0.029*1/2n	0.11*(1/2n-1)	0.029*(1/2n-1)	(n-2)*0.060	(n-2)*0.646

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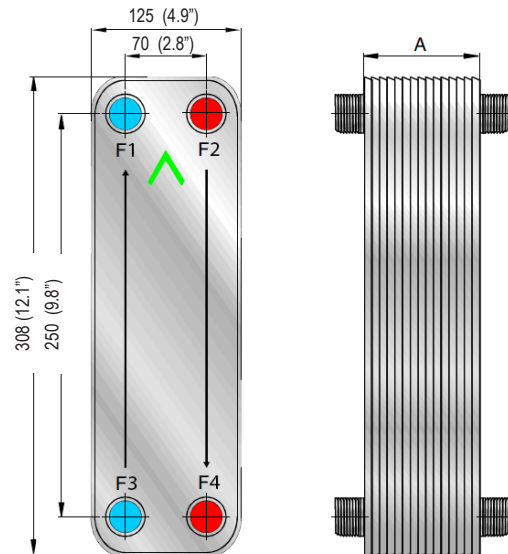
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**MODEL: HTG035A**



**Technical Dimension Data**

<b>Design Pressure</b>	3.0MPa	435 psi
<b>Testing Pressure</b>	4.5Mpa/6.75Mpa	653 psi / 979 psi
<b>Design Temperature</b>	-195C to 225C	-319F to 437F
<b>Maximum flow</b>	18m3/h	75 GPM
<b>Max Pipe Size</b>	1-1/4" (NPT)	1-1/8" (swt.)
<b>Channel</b>	H	



Model	MAX Plates (n)	Depth - Standard Pressure		Weight			
		A - mm	A - inches	kg	lbs.		
HTG035A	130	7+2.4n	0.28+0.10n	1.3+0.11n	2.86+0.24n		
		Volume - F1/F2		Volume - F3/F4		HX Area	
		Liters	Gallons	Liters	Gallons	m2	ft2
		0.06*1/2n	0.016*1/2n	0.06*(1/2n-1)	0.016*(1/2n-1)	(n-2)*0.035	(n-2)*0.377

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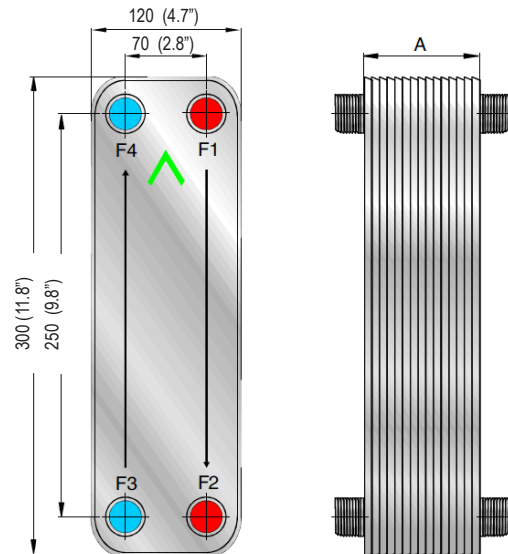
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**MODEL: HTG030B**



**Technical Dimension Data**

<b>Design Pressure</b>	3.0MPa / 4.5 Mpa	435 psi / 653 psi
<b>Testing Pressure</b>	4.5Mpa/6.75Mpa	653 psi / 979 psi
<b>Design Temperature</b>	-194C to 200C	-321F to 392F
<b>Maximum flow</b>	12m3/h	52 GPM
<b>Max Pipe Size</b>	1-1/4" (NPT)	1-1/8" (swt.)
<b>Channel</b>	H	



Model	MAX Plates (n)	Depth - High Pressure		Depth - Standard Pressure		Weight	
		A - mm	A - inches	A - mm	A - inches	kg	lbs.
HTG030B	150	11+2.3n	0.43+09n	9+2.3n	0.35+.09n	1.4+0.11n	3.08+0.24n
		Volume - F1/F2		Volume - F3/F4		HX Area	
		Liters	Gallons	Liters	Gallons	m2	ft2
		0.06*1/2n	0.016*1/2n	0.06*(1/2n-1)	0.016*(1/2n-1)	(n-2)*0.030	(n-2)*0.323

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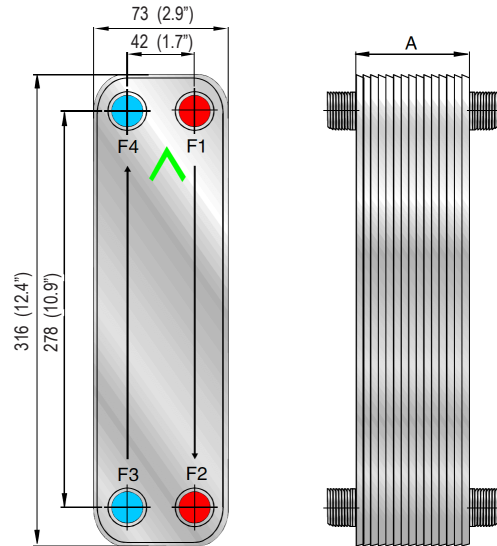
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**MODEL: HTG022**



Technical Dimension Data		
Design Pressure	3.0Mpa/4.5Mpa	435 psi / 653 psi
Testing Pressure	4.5Mpa/6.75Mpa	653 psi / 979 psi
Design Temperature	-196~200°C	-321F to 392F
Maximum flow	4m <sup>3</sup> /h	18 GPM
Max Pipe Size	3/4" (NPT)	7/8" (swt.)
Channel	H,M,L	



Model	MAX Plates (n)	Depth - High Pressure		Depth - Standard Pressure		Weight	
		A - mm	A - inches	A - mm	A - inches	kg	lbs.
HTG022	60	11+2.3n	0.43+09n	9+2.3n	0.35+.09n	0.7+0.07n	1.54+0.15n
		Volume - F1/F2		Volume - F3/F4		HX Area	
		Liters	Gallons	Liters	Gallons	m <sup>2</sup>	ft <sup>2</sup>
		0.04*1/2n	0.01*1/2n	0.04*(1/2n-1)	0.01*(1/2n-1)	(n-2)*0.022	(n-2)*0.237

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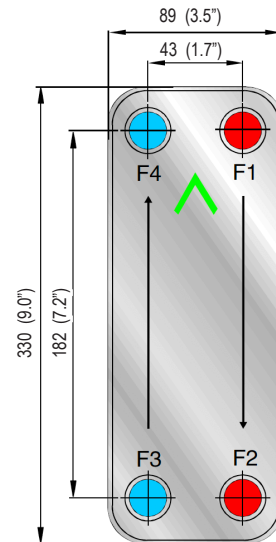
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**MODEL: HTG018**



Technical Dimension Data		
Design Pressure	3.0Mpa/4.5Mpa	435 psi / 653 psi
Testing Pressure	4.5Mpa/6.75Mpa	653 psi / 979 psi
Design Temperature	-194C to 200C	-321F to 392F
Maximum flow	6m3/h	26 GPM
Max Pipe Size	3/4" (NPT)	7/8" (swt.)
Channel	H	



Model	MAX Plates (n)	Depth - High Pressure		Depth - Standard Pressure		Weight	
		A - mm	A - inches	A - mm	A - inches	kg	lbs.
HTG018	60	11+2.3n	0.43+09n	9+2.3n	0.35+.09n	1.1+0.055n	2.4+0.12n
		Volume - F1/F2		Volume - F3/F4		HX Area	
		Liters	Gallons	Liters	Gallons	m2	ft2
		0.036*1/2n	.0095*1/2n	0.036*(1/2n-1)	.0095*(1/2n-1)	(n-2)*0.018	(n-2)*0.194

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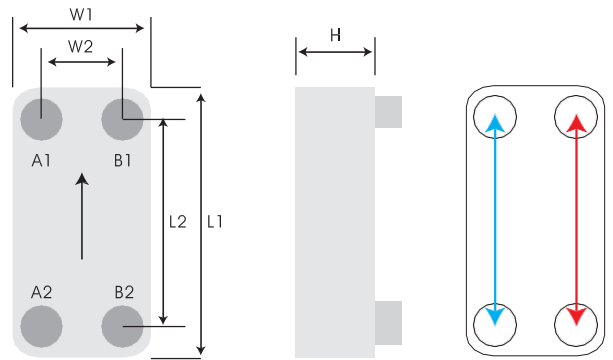
# HTGKC Series- CO<sub>2</sub> Super High Pressure Brazed Plate Heat Exchanger



The HTGKC series is a patented solution specially designed for Gas coolers, Condensers, Evaporators and Economizers in R744 (CO<sub>2</sub>) Heat pumps and Refrigeration Systems. Different designs with a max. working pressure of 2030.5 psi, 1450.4 psi and 1015.3 psi are available for Supercritical, Transcritical and Subcritical CO<sub>2</sub> heating and cooling systems.

Compact size, outstanding heat transfer performance and low pressure drop are the three key features. The quality and the durability of the HTGKC series is proven by thorough inspection, achieving a burst test pressure up to 2074 psi and cycle test over 100,000 cycles.

Brazing Material		Copper		
Model	HTGKC-	020,040	021,041	022,042
		095,200	096,201	097,202
		(A1,A2/B1,B2)		
Max. Working Pressure	(psi)	1015.3/435.1*	1450.4/435.1*	2030.5/435.1*
Min. Test Pressure	(psi)	1450.4/623.7*	2074.0/623.7*	2900.8/623.7*
Max. Working Temperature(°F)		392°F		



\* For higher working pressure request on B1/B2, please contact HTG representative.

Model	L1 (inch)	L2 (inch)	W1 (inch)	W2 (inch)	H Thickness (inch)	Weight*(kg) (Without Connection)	Heat Transfer Area/ plate (ft <sup>2</sup> )	Total Heat Transfer Area (ft <sup>2</sup> )	Volume/ Channel (gal)	Total Volume (gal)
HTGKC020	7.52	6.06	3.03	1.57	0.374+0.043*N	2.469+0.093*N	0.119	(N-2)*0.119	0.002	(N-1)*0.002
HTGKC040	12.36	10.83	2.99	1.57	0.512+0.079*N	3.836+0.320*N	0.208	(N-2)*0.208	0.008	(N-1)*0.008
HTGKC095	20.63	18.35	4.25	1.97	0.520+0.085*N	12.170+0.705*N	0.511	(N-2)*0.511	0.019	(N-1)*0.019
HTGKC200	24.25	20.43	7.44	3.62	0.551+0.085*N	27.315+1.329*N	1.023	(N-2)*1.023	0.041	(N-1)*0.041

Model	L1 (inch)	L2 (inch)	W1 (inch)	W2 (inch)	H Thickness (inch)	Weight*(kg) (Without Connection)	Heat Transfer Area/ plate (ft <sup>2</sup> )	Total Heat Transfer Area (ft <sup>2</sup> )	Volume/ Channel (gal)	Total Volume (gal)
HTGKC021	7.52	6.06	3.03	1.57	0.374+0.043*N	2.513+0.093*N	0.119	(N-2)*0.119	0.002	(N-1)*0.002
HTGKC041	12.36	10.83	2.99	1.57	0.512+0.079*N	4.034+0.320*N	0.208	(N-2)*0.208	0.008	(N-1)*0.008
HTGKC096	20.63	18.35	4.25	1.97	0.520+0.085*N	12.522+0.705*N	0.511	(N-2)*0.511	0.019	(N-1)*0.019
HTGKC201	24.25	20.43	7.44	3.62	0.551+0.085*N	27.690+1.391*N	1.023	(N-2)*1.023	0.041	(N-1)*0.041

Model	L1 (inch)	L2 (inch)	W1 (inch)	W2 (inch)	H Thickness (inch)	Weight*(kg) (Without Connection)	Heat Transfer Area/ plate (ft <sup>2</sup> )	Total Heat Transfer Area (ft <sup>2</sup> )	Volume/ Channel (gal)	Total Volume (gal)
HTGKC022	7.52	6.06	3.03	1.57	0.374+0.043*N	2.482+0.093*N	0.119	(N-6)*0.119	0.002	(N-5)*0.002
HTGKC042	12.36	10.83	2.99	1.57	0.512+0.079*N	3.858+0.335*N	0.208	(N-2)*0.208	0.008	(N-1)*0.008
HTGKC097	20.63	18.35	4.25	1.97	0.520+0.085*N	13.007+0.763*N	0.511	(N-2)*0.511	0.019	(N-1)*0.019
HTGKC202	24.25	20.43	7.44	3.62	0.551+0.085*N	27.359+1.664*N	1.023	(N-2)*1.023	0.041	(N-1)*0.041

N: number of plates

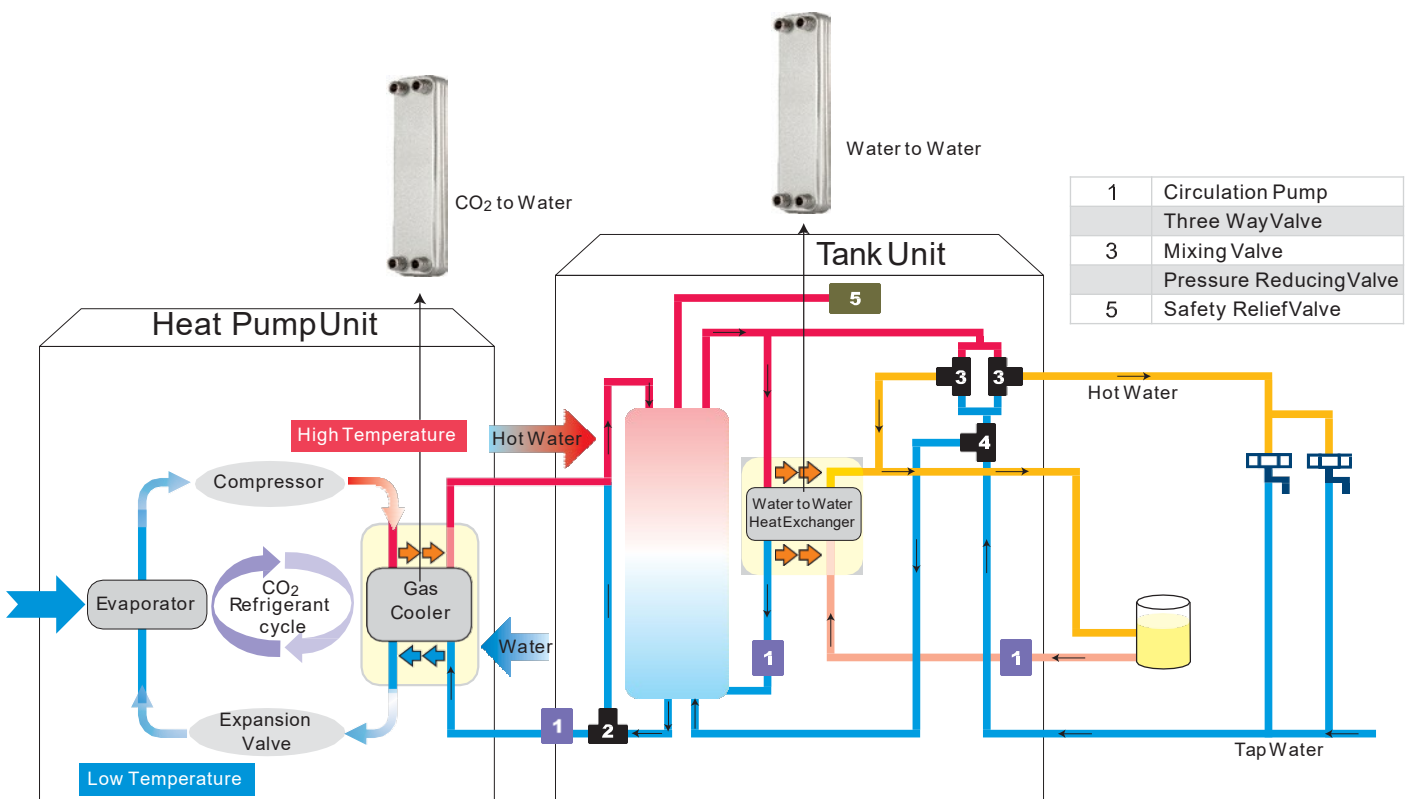
# Model Selection Chart

R744 vs. Water Gas Cooler (Max. Working Pressure : 2030.5 psi)

RT	kW	BTU/H	HTGKC020/021/022	HTGKC040/041/042	HTGKC095/096/097	HTGKC200/201/202
1	3.52	12000	HTGKC022x36 (4 Pass)	HTGKC042x24 (4 Pass)		
1.5	5.27	18000	HTGKC022x44 (4 Pass)	HTGKC042x32 (4 Pass)		
2	7.03	24000	HTGKC022x52 (4 Pass)	HTGKC042x40 (4 Pass)	HTGKC097x24 (4 Pass)	
3	10.55	36000			HTGKC097x24 (4 Pass)	
4	14.06	48000			HTGKC097x32 (4 Pass)	
5	17.58	60000			HTGKC097x40 (4 Pass)	HTGKC0202x24 (3 Pass)
7.5	26.37	90000			HTGKC097x48 (4 Pass)	HTGKC0202x30 (3 Pass)
10	35.16	120000			HTGKC097x64 (4 Pass)	HTGKC0202x36 (3 Pass)
12.5	43.95	150000			HTGKC097x72 (4 Pass)	HTGKC0202x48 (3 Pass)
15	52.74	180000			HTGKC097x88 (4 Pass)	HTGKC0202x54 (3 Pass)
20	70.32	240000				HTGKC0202x66 (3 Pass)
25	87.90	300000				HTGKC0202x84 (3 Pass)
30	105.48	360000				HTGKC0202x102 (3 Pass)
35	123.06	420000				HTGKC0202x114 (3 Pass)
40	140.64	480000				HTGKC0202x132 (3 Pass)

The above information is for reference only; the data will be different under various working conditions and specifications.

## CO<sub>2</sub> Heat Pump System



## Insulation Kit Installation cont.

Remove the yellow edge film from the front panel, A, working around the heat exchanger, align the front panel with the side panel. Repeat the process with the back panel, B, by again removing the yellow edge film.

Apply the thin cover pieces over the seams located around the connections and at the place where the side panel ends meet.

Never use harsh chemicals to clean the insulation. Store insulation kits in a cool, dry place

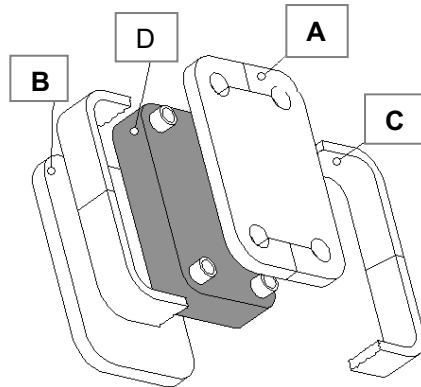


Fig.7

## Cleaning & Maintenance -

Brazed plate heat exchangers are usually trouble free in operation and aside from cleaning when necessary, require no service.

Water quality must be maintained with proper water treatment. A strainer of 16-20 mesh should be installed on the water inlet and maintained. Fluids that are aggressive to the materials in the heat exchanger must be avoided.

To clean the heat exchanger, reverse flush with water or a mild organic acid solution. The flow rate for the flushing should be greater than the operating flow rate of the heat exchanger. When using a solution other than water, always use it according to the manufacturer's instructions and check that it is compatible with the materials in the heat exchanger. Flush the heat exchanger thoroughly with clean water after cleaning.

HTG brazed plate heat exchangers are manufactured with AISI 316L stainless steel and pure copper brazing.

If you have any questions about installation or application of brazed plate heat exchangers, contact the HTG Engineering Support Group at: 1-631-651-2660.

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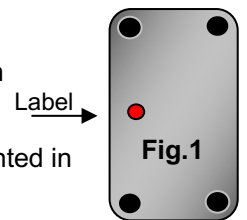
# HTG Brazed Plate Heat Exchanger Installation & Application Guide

Heat Transfer Group, Inc.  
Tel 1-631-651-2660 Fax 1-631-651-2665

## Mounting Position –

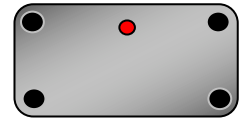
The heat exchangers should be mounted so there is sufficient room around the heat exchanger to perform maintenance work.

It is recommended that the heat exchangers be mounted in the vertical position (fig. 1).

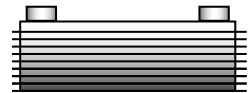


Where space and piping require another position, the following guidelines should be followed.

For liquid-to-liquid or **single phase applications**, the heat exchanger can be mounted in any position that does not create the possibility of trapping air or other gases in the heat exchanger (fig. 2).



If the heat exchanger must be mounted with the connections on the side, orient the heat exchanger so that the nozzles connected to the fluid that has the possibility of gas or air entrained is at the top.



Never mount the heat exchanger with the connections pointing down (fig. 3).



For all **two-phase applications** the heat exchanger should always be mounted vertically. If this is not possible, contact HTG, Inc for recommendation on mounting.

The connections are label F2,F1 and indicates the primary side for liquid-to-liquid applications. The secondary side is labeled W1, W2.

Preferably the heat exchanger should be supported by a bracket or support. The unit should not be supported solely by the piping. Insure



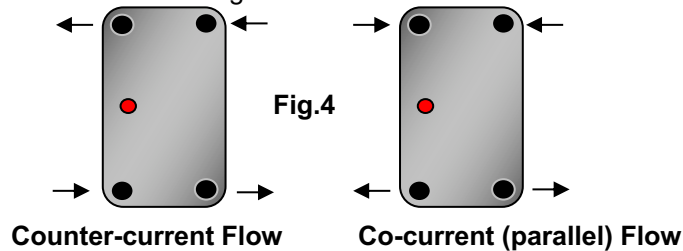
that severe vibrations or pulsations cannot be transmitted to the heat exchanger by installing vibration absorbers in the piping and using vibration absorbing material between the heat exchanger and the equipment.

HTG has a full line of mounting brackets, as well as insulation kits, available for the brazed plate heat exchangers.

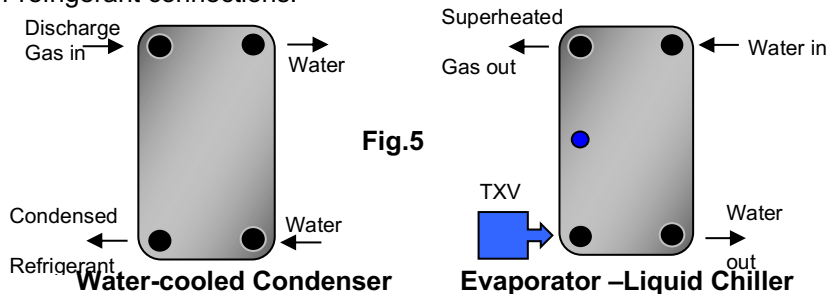
**The heat exchangers may have some sharp edges so exercise caution when handling.**

### Piping Connections –

Connections to the heat exchanger are identified by a color label (fig 1). In most applications the highest efficiency will be realized by connecting the heat exchanger for counter-current flow. Certain special applications may require co-current (parallel) flow. See figure 4 for counter-current and co-current connection diagram.



HTG brazed plate heat exchangers are used extensively as refrigerant condensers and evaporators. Except in extremely rare cases, always connect for counter-current flow for refrigerant applications. See figure 5 for refrigerant connections.



On systems where the water quality is in question, the installation of a strainer is required to prevent large particles from becoming lodged in the heat exchanger. A 16 to 20 mesh strainer is recommended.

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**Blockage in the heat exchanger will lead to fouling or freezing of the heat exchanger.**

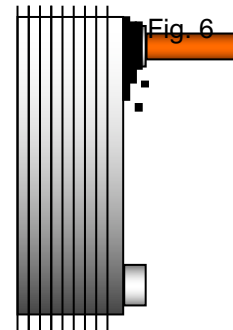
### Piping Connections cont.

The strainer must be located at the inlet to the heat exchanger. Strainers located at the cooling tower or pump, while worthwhile for **system operation, will not adequately protect the heat exchanger.**

On new or renovation systems, flushing the liquid piping to remove construction debris is recommended before connecting the piping to the heat exchanger.

### Soldering and Welding connections -

When soldering piping to the heat exchanger, the temperature must not exceed the melting point of the brazing material used in the heat exchanger. To insure that no damage is done to the heat exchanger by overheating during brazing, it is required that a soldering alloy with a flow temperature below 1200° F (650° C) be used. A soldering alloy with 45-55% silver is recommended. The flux should be non corrosive to the materials in the heat exchanger. It is always best to consult your supplier of soldering and brazing materials for assistance.



Use a wet towel, or other heat sink, wrapped around the connection next to the plate pack, to protect the heat exchanger from overheating.

For welding, prepare the edge of the tube with a 30° angle. Place the piping into the connection and TIG or MIG weld the tube to the connection by filling the groove formed by the two edges. This method minimizes the heating zone.

### Insulation Kit Installation -

Install the insulation kit after all soldering is complete and the unit is cool. The heat exchanger must be clean, dry and free from oil, grease and paint. "Dry fit" the kit pieces to assure proper size before installation.

Refer to Fig. 7. Install front panel, A, by removing the white backing film. **DO NOT REMOVE THE YELLOW EDGE FILM.** Press the panel in place firmly and smooth it down with even pressure on the heat exchanger, D. Install the rear panel, B, by removing the white backing film only. **DO NOT REMOVE THE YELLOW EDGE FILM.**

Install the side panel, C, by removing the white backing film. Starting at one end, wrap around the heat exchanger with a slight stretching motion. At the end, remove the yellow edge film and press the two ends firmly together.

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