



Brazed Plate Heat Exchanger



ASME
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KHK
Japan

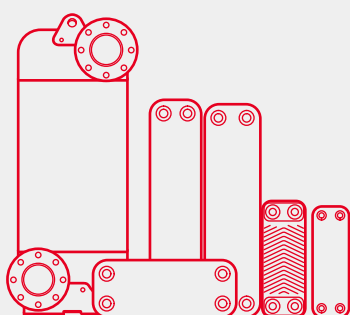
KRAIA
Korea

CRN
Certified

www.kaori.com.tw

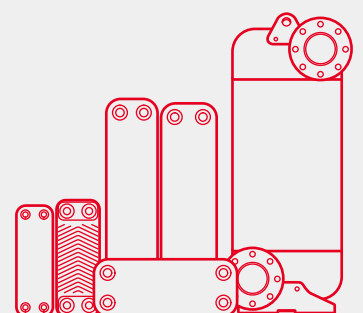


Innovation · Quality · Responsibility · Honor



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Company Profile

KAORI was established in 1970, insisting on pursuing innovative technology and manufacturing world-class products as its main goal. Consistently improving, researching, and importing new technology, KAORI launched the brazed plate heat exchanger division in 1994, and the quality system was ISO9001 certified in 1995; afterward KAORI brazed plate heat exchanger obtained numerous patents and certificates. In order to fulfill the increasing demand from the worldwide market, Kaohsiung plant and Ningbo plant were built in 2002 and 2005 to provide larger production capacity. KAORI brazed plate heat exchanger is the No.1 brand in Taiwan and has been exported to more than 50 countries.

KAORI Brazed Plate Heat Exchanger Plants



Chung-Li Taiwan Plant



Kaohsiung Taiwan Plant



Ningbo China Plant

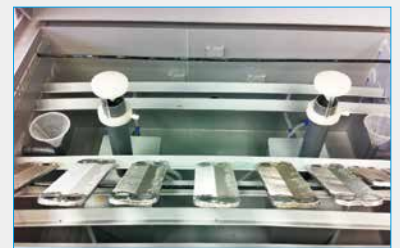
Facility and Test Equipment



Vacuum Furnace



Continuous Pressing



Salt Spray Test



CO₂ High Pressure Test



Helium Leakage Test



Thermal Shock Tester



Performance Test

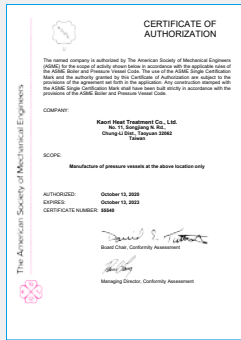


Pressure Leakage Test



Burst Test

Certificate



ASME



UL



CRN



ISO9001:2015



CE/PED

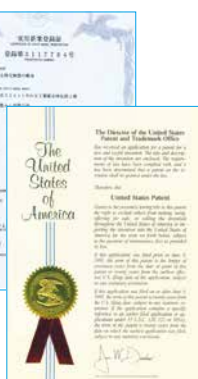


JAPAN KHK

Patent



CO₂ High Pressure BPHE Patents in Taiwan, China, Japan and Germany



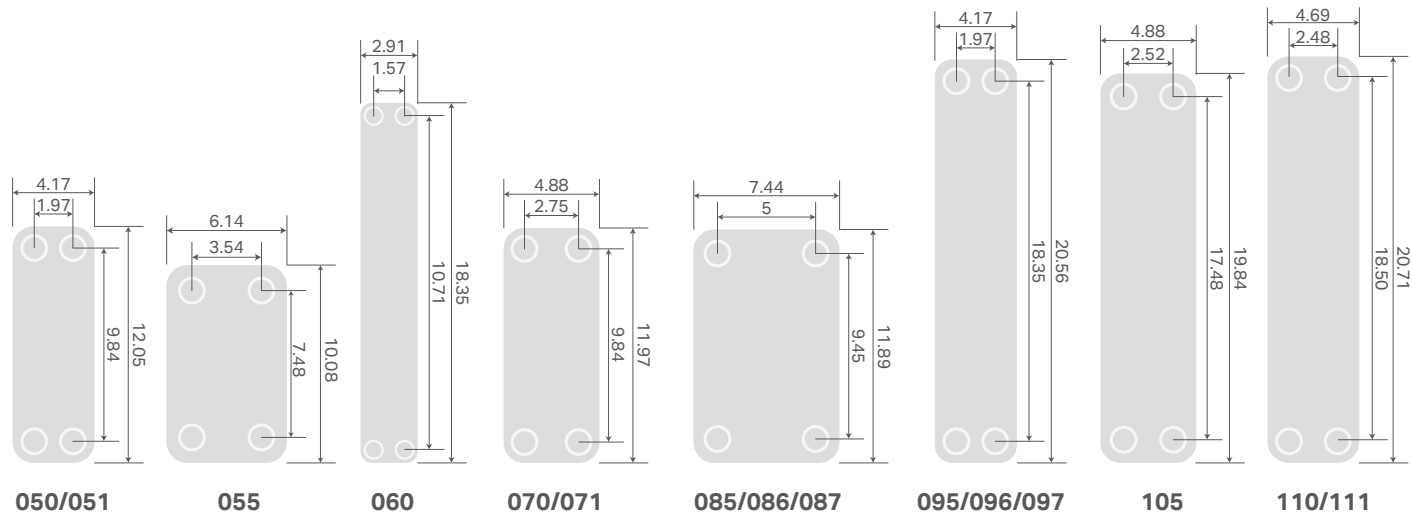
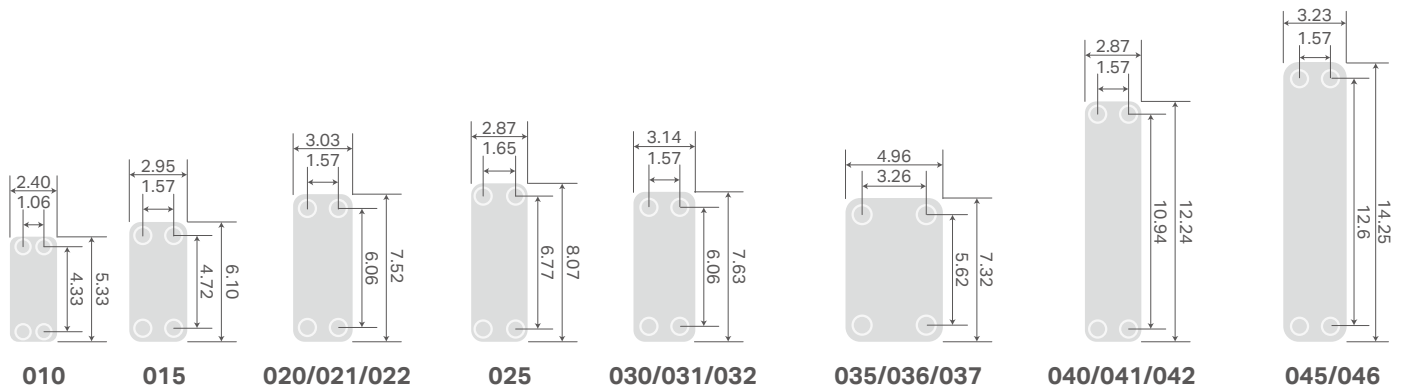
Air Dryer BPHE Patents in Taiwan, Japan, Korea, and USA

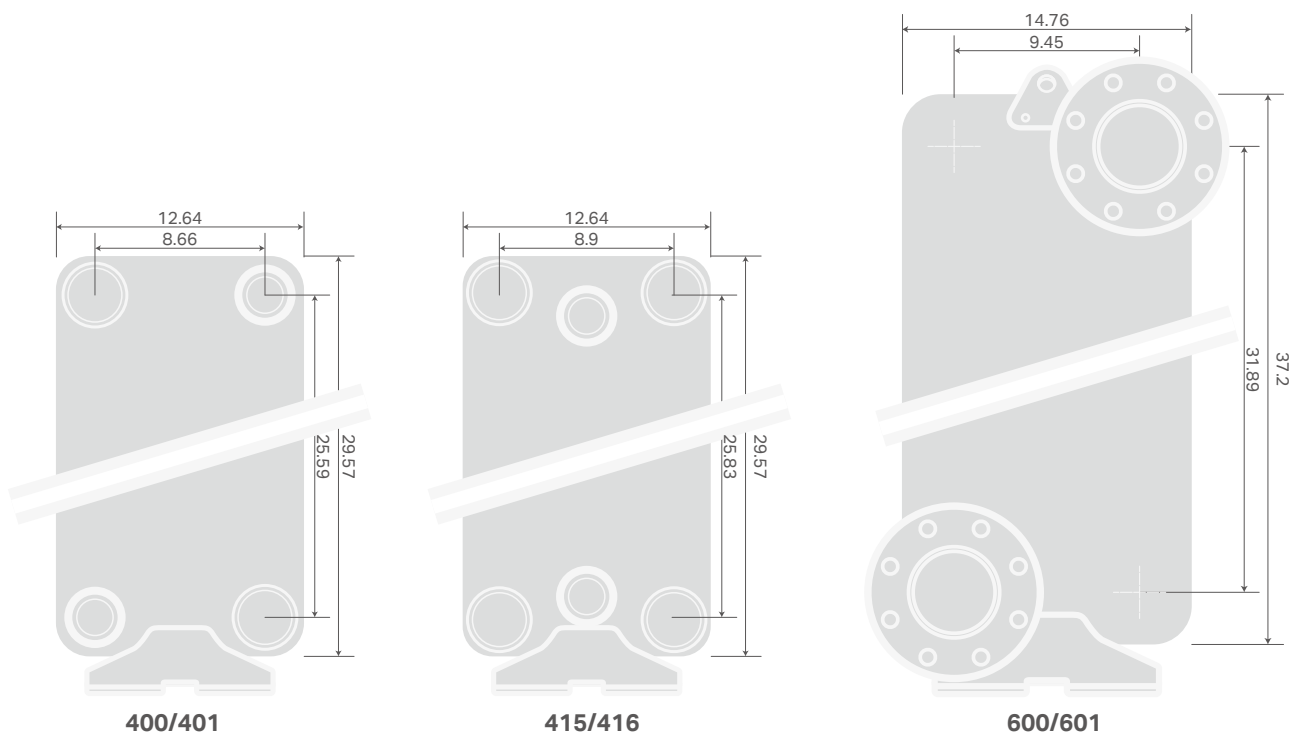
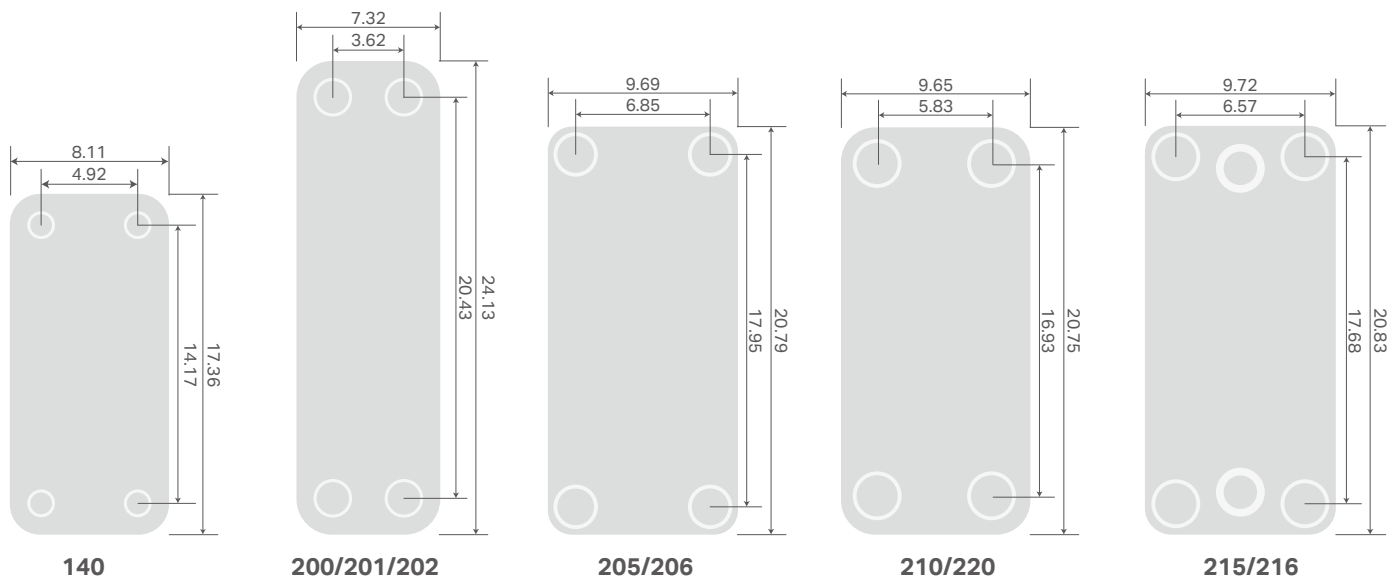
Double Wall BPHE Patents in Taiwan, Germany and China

Series

| Range | K Series | R Series | Z Series | C Series | B Series | A Series | D Series | E/F Series |
|--------------------------------|---|---|---|---|---|---|---|---|
| | Standard | High Heat Transfer Performance | Large Diagonal Flow | Super High Pressure | Asymmetric | Air Dryer | Double Wall | Boilers |
| Solutions |  |  |  |  |  |  |  |  |
| Max. Working Pressure | 652.7 psi | 652.7 psi | 652.7 psi | 2030.5 psi | 652.7 psi | 652.7 psi | 290 psi | 435 psi |
| Characteristic | Standard Dual Circuits | Micro Channel Design | Large Heat Capacity High Flow Rate | R744(CO ₂) | Reduction in refrigerant filling and pressure drop | Prevent Fluid Contamination | Low Pressure | Pressure and Thermal Shock Endurable |
| Brazing Material | Copper/Nickel | Copper | Copper | Copper | Copper | Copper | Copper | Copper |
| HVAC | ● | ● | ● | ● | ● | | ● | |
| Refrigeration | ● | ● | ● | ● | ● | | | |
| Heat Pump | ● | ● | ● | ● | ● | | ● | |
| Chiller | ● | ● | ● | ● | ● | | | |
| District Heating & Cooling | ● | ● | ● | | ● | | | |
| Solar Heating | ● | ● | ● | | ● | | | |
| Swimming Pool | | | | | | | | |
| Air Dryer | | | | | | ● | | |
| Process Cooling | ● | | ● | | ● | | ● | ● |
| Heat Recovery | ● | | ● | | ● | | | |
| Temperature Controller | ● | | | | ● | | | ● |
| Laser Cutting/ Welding Machine | ● | | | | ● | | | |
| Hydraulic Cooling | ● | | ● | | ● | | | |
| Energy Industry | ● | | ● | | ● | | | |
| ORC | ● | | ● | | ● | | | |
| Fuel Cell, CHP | ● | | | | ● | | | ● |
| Wind Power-Gear Box | ● | | ● | | ● | | | |
| Marine & Transport | ● | | ● | | ● | | | |
| Evaporator | ● | ● | ● | ● | ● | | | |
| Condenser | ● | ● | ● | ● | ● | | ● | |
| De-superheater/Subcooler | ● | ● | ● | ● | ● | | ● | |
| Economizer | ● | ● | ● | ● | ● | | ● | |
| Oil Cooler | ● | | | | ● | | ● | |
| Pre-cooler/ Pre-heater | ● | ● | ● | ● | ● | | ● | |
| Air Cooler | ● | | ● | ● | ● | ● | | |

Brazed Plate Heat Exchanger Dimension





Unit: inch

* Due to different patterns of each series, precise dimension details will be specified in respective pages.

K Series-Standard Brazed Plate Heat Exchanger



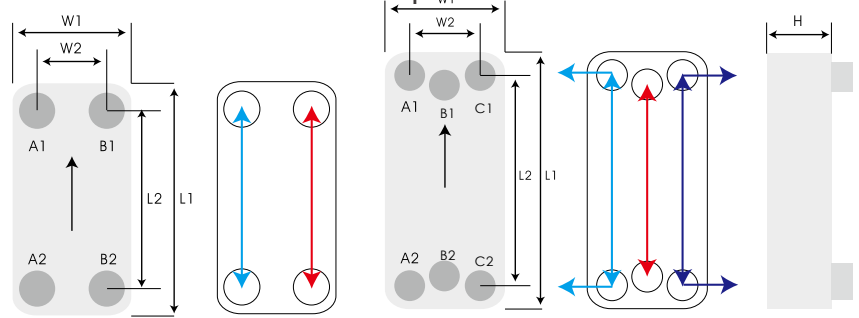
K series is the series with the most complete range in sizes and widely used in heating and cooling applications.

Main application: HVAC, heat pump, chiller, oil cooler, district heating and cooling.

K-S Extra Strength: Kaori "S" type BPHE is designed to withstand max. working pressure 435.1 psi for R410A Application.

K-D True Dual Circuits: Kaori "D" type BPHE is designed to handle two compressors with true dual refrigerant circuits pattern; perfect choice for both full and half load operation.

| Brazing Material | Copper | Copper (Extra Strength) | Nickel |
|-------------------------------|---------------|-------------------------|-------------|
| | (A1,A2/B1,B2) | | |
| Max. Working Pressure (psi) | 435.1/435.1 | 652.7/435.1 | 145.0/145.0 |
| Max. Working Temperature (°F) | 392°F | | |



K415/K215D: True Dual Circuits- 6 Connections

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| K010 | 5.39 | 4.33 | 2.44 | 1.02 | 0.256+0.067*N | 0.331+0.055*N | 0.069 | (N-2)*0.069 | 0.003 | (N-1)*0.003 |
| K025 | 8.07 | 6.77 | 2.87 | 1.65 | 0.264+0.089*N | 1.058+0.088*N | 0.129 | (N-2)*0.129 | 0.007 | (N-1)*0.007 |
| K030 | 7.64 | 6.06 | 3.15 | 1.57 | 0.354+0.087*N | 1.102+0.104*N | 0.126 | (N-2)*0.126 | 0.007 | (N-1)*0.007 |
| K040 | 12.24 | 10.94 | 2.87 | 1.57 | 0.354+0.091*N | 1.742+0.154*N | 0.210 | (N-2)*0.210 | 0.011 | (N-1)*0.011 |
| K050 | 12.05 | 9.84 | 4.17 | 1.97 | 0.394+0.094*N | 2.623+0.256*N | 0.274 | (N-2)*0.274 | 0.015 | (N-1)*0.015 |
| K060 | 18.35 | 17.01 | 2.91 | 1.57 | 0.394+0.091*N | 2.623+0.220*N | 0.325 | (N-2)*0.325 | 0.017 | (N-1)*0.017 |
| K070 | 11.97 | 9.84 | 4.88 | 2.76 | 0.394+0.094*N | 3.042+0.295*N | 0.323 | (N-2)*0.323 | 0.017 | (N-1)*0.017 |
| K095 | 20.55 | 18.35 | 4.17 | 1.97 | 0.433+0.094*N | 6.239+0.450*N | 0.511 | (N-2)*0.511 | 0.025 | (N-1)*0.025 |
| K105 | 19.84 | 17.48 | 4.88 | 2.52 | 0.433+0.094*N | 7.121+0.507*N | 0.574 | (N-2)*0.574 | 0.028 | (N-1)*0.028 |
| K200 | 24.13 | 20.43 | 7.32 | 3.62 | 0.551+0.094*N | 15.190+0.915*N | 1.017 | (N-2)*1.017 | 0.054 | (N-1)*0.054 |
| K205 | 20.79 | 17.95 | 9.69 | 6.85 | 0.551+0.094*N | 16.094+1.058*N | 1.183 | (N-2)*1.183 | 0.061 | (N-1)*0.061 |
| K210* | 20.75 | 16.93 | 9.65 | 5.83 | 0.453+0.112*N | 14.727+1.025*N | 1.115 | (N-2)*1.115 | 0.076 | (N-1)*0.076 |
| K220 | 20.75 | 16.93 | 9.65 | 5.83 | 0.551+0.094*N | 17.468+0.968*N | 1.115 | (N-2)*1.115 | 0.076 | (N-1)*0.076 |
| K215 | 20.83 | 17.68 | 9.72 | 6.57 | 0.512+0.094*N | 18.320+1.058*N | 1.187 | (N-2)*1.187 | 0.058 | (N-1)*0.058 |
| K415 | 29.57 | 25.83 | 12.64 | 8.90 | 0.551+0.094*N | 65.654+1.918*N | 2.232 | (N-2)*2.232 | 0.109 | (N-1)*0.109 |

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|--------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| K025S | 8.07 | 6.77 | 2.87 | 1.65 | 0.264+0.089*N | 1.124+0.088*N | 0.129 | (N-2)*0.129 | 0.007 | (N-1)*0.007 |
| K030S | 7.64 | 6.06 | 3.15 | 1.57 | 0.433+0.087*N | 2.116+0.104*N | 0.126 | (N-2)*0.126 | 0.007 | (N-1)*0.007 |
| K040S | 12.24 | 10.94 | 2.87 | 1.57 | 0.354+0.091*N | 1.852+0.154*N | 0.210 | (N-2)*0.210 | 0.011 | (N-1)*0.011 |
| K050S | 12.05 | 9.84 | 4.17 | 1.97 | 0.472+0.094*N | 5.269+0.256*N | 0.274 | (N-2)*0.274 | 0.015 | (N-1)*0.015 |
| K060S | 18.35 | 17.01 | 2.91 | 1.57 | 0.394+0.091*N | 2.712+0.220*N | 0.325 | (N-2)*0.325 | 0.017 | (N-1)*0.017 |
| K070S | 11.97 | 9.84 | 4.88 | 2.76 | 0.472+0.094*N | 5.556+0.295*N | 0.323 | (N-2)*0.323 | 0.017 | (N-1)*0.017 |
| K095S | 20.55 | 18.35 | 4.17 | 1.97 | 0.457+0.094*N | 8.311+0.450*N | 0.511 | (N-2)*0.511 | 0.025 | (N-1)*0.025 |
| K105S | 19.84 | 17.48 | 4.88 | 2.52 | 0.591+0.094*N | 12.059+0.522*N | 0.574 | (N-2)*0.574 | 0.028 | (N-1)*0.028 |
| K200S | 24.13 | 20.43 | 7.32 | 3.62 | 0.669+0.094*N | 26.720+0.915*N | 1.017 | (N-2)*1.017 | 0.054 | (N-1)*0.054 |
| K205S | 20.79 | 17.95 | 9.69 | 6.85 | 0.650+0.094*N | 29.454+1.058*N | 1.183 | (N-2)*1.183 | 0.061 | (N-1)*0.061 |
| K210S* | 20.75 | 16.93 | 9.65 | 5.83 | 0.606+0.112*N | 26.654+1.025*N | 1.115 | (N-2)*1.115 | 0.076 | (N-1)*0.076 |
| K215S | 20.83 | 17.68 | 9.72 | 6.57 | 0.630+0.094*N | 30.424+1.058*N | 1.187 | (N-2)*1.187 | 0.058 | (N-1)*0.058 |

N: number of plates

* Working pressure for K210: 232.1psi. Working pressure for K210S: 435.1psi.

Model Selection Chart

R32 vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | BTU/H | K025S | K030S | K040S | K050S | K060S | K070S |
|-----|-------|-------|----------|----------|----------|----------|-----------|----------|
| 0.2 | 0.70 | 2400 | K025Sx8 | K030Sx8 | | | | |
| 0.5 | 1.76 | 6000 | K025Sx16 | K030Sx16 | K040Sx8 | | | |
| 1 | 3.52 | 12000 | K025Sx28 | K030Sx28 | K040Sx14 | K050Sx10 | K060SxH10 | |
| 1.5 | 5.27 | 18000 | | | K040Sx18 | K050Sx14 | K060SxH12 | K070Sx14 |
| 2 | 7.03 | 24000 | | | K040Sx20 | K050Sx18 | K060SxH16 | K070Sx18 |
| 2.5 | 8.79 | 30000 | | | | K050Sx22 | K060SxH18 | K070Sx22 |
| 3 | 10.55 | 36000 | | | | K050Sx26 | K060SxH22 | K070Sx26 |
| 4 | 14.06 | 48000 | | | | K050Sx34 | K060SxH30 | K070Sx34 |
| 5 | 17.58 | 60000 | | | | K050Sx42 | K060SxH38 | K070Sx42 |

R32 vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | BTU/H | K095S | K105S | K200S | K205S | K215SD |
|------|--------|--------|----------|----------|-----------|----------|-----------|
| 4 | 14.06 | 48000 | K095Sx18 | K105Sx18 | | | |
| 5 | 17.58 | 60000 | K095Sx22 | K105Sx22 | | | |
| 7.5 | 26.37 | 90000 | K095Sx32 | K105Sx32 | | | |
| 10 | 35.16 | 120000 | K095Sx42 | K105Sx42 | | | K215SxD22 |
| 12.5 | 43.95 | 150000 | K095Sx54 | K105Sx54 | K200SxH26 | K205Sx26 | |
| 15 | 52.74 | 180000 | K095Sx64 | K105Sx64 | K200SxH30 | K205Sx30 | K215SxD30 |
| 20 | 70.32 | 240000 | | | K200SxH40 | K205Sx42 | K215SxD38 |
| 25 | 87.9 | 300000 | | | K200SxH52 | K205Sx54 | K215SxD50 |
| 30 | 105.48 | 360000 | | | K200SxH62 | K205Sx66 | K215SxD58 |
| 40 | 140.64 | 480000 | | | K200SxH90 | K205Sx98 | K215SxD82 |

R32 vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | BTU/H | K025 | K030 | K040 | K050 | K060 | K070 |
|-----|-------|-------|---------|---------|---------|---------|----------|---------|
| 0.2 | 0.70 | 2400 | K025x14 | K030x14 | | | | |
| 0.5 | 1.76 | 6000 | K025x24 | K030x24 | K040x14 | | | |
| 1 | 3.52 | 12000 | K025x44 | K030x44 | K040x22 | K050x14 | K060xH12 | |
| 1.5 | 5.27 | 18000 | | | K040x32 | K050x22 | K060xH18 | K070x20 |
| 2 | 7.03 | 24000 | | | | K050x28 | K060xH24 | K070x26 |
| 2.5 | 8.79 | 30000 | | | | K050x32 | K060xH26 | K070x30 |
| 3 | 10.55 | 36000 | | | | K050x44 | K060xH40 | K070x42 |
| 4 | 14.06 | 48000 | | | | | K060xH50 | K070x54 |
| 5 | 17.58 | 60000 | | | | | | K070x64 |

R32 vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | BTU/H | K095 | K105 | K200 | K205 | K215D |
|-----|--------|--------|---------|---------|----------|----------|-----------|
| 3 | 10.55 | 36000 | K095x18 | K105x20 | | | |
| 4 | 14.06 | 48000 | K095x22 | K105x26 | | | |
| 5 | 17.58 | 60000 | K095x26 | K105x34 | | | |
| 7.5 | 26.37 | 90000 | K095x40 | K105x50 | | | |
| 10 | 35.16 | 120000 | K095x54 | K105x68 | | | K215Dx30 |
| 12 | 43.95 | 150000 | | | K200xH32 | K205x30 | |
| 15 | 52.74 | 180000 | | | K200xH40 | K205x38 | K215Dx38 |
| 20 | 70.32 | 240000 | | | K200xH52 | K205x48 | K215Dx46 |
| 25 | 87.9 | 300000 | | | K200xH64 | K205x60 | K215Dx58 |
| 30 | 105.48 | 360000 | | | | K205x74 | K215Dx66 |
| 40 | 140.64 | 480000 | | | | K205x114 | K215Dx90 |
| 40 | 140.64 | 480000 | | | | K205x180 | K215Dx126 |

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

Model Selection Chart

R410A vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | BTU/H | K025S | K030S | K040S | K050S | K060S | K070S |
|-----|-------|-------|----------|----------|----------|----------|----------|----------|
| 0.2 | 0.70 | 2400 | K025Sx8 | K030Sx8 | | | | |
| 0.5 | 1.76 | 6000 | K025Sx16 | K030Sx16 | K040Sx10 | | | |
| 1 | 3.52 | 12000 | K025Sx28 | K030Sx28 | K040Sx16 | K050Sx12 | K060Sx10 | K070Sx12 |
| 1.5 | 5.27 | 18000 | | | K040Sx20 | K050Sx16 | K060Sx14 | K070Sx16 |
| 2 | 7.03 | 24000 | | | K040Sx24 | K050Sx20 | K060Sx18 | K070Sx20 |
| 2.5 | 8.79 | 30000 | | | | K050Sx26 | K060Sx22 | K070Sx26 |
| 3 | 10.55 | 36000 | | | | K050Sx32 | K060Sx28 | K070Sx32 |
| 4 | 14.06 | 48000 | | | | K050Sx42 | K060Sx38 | K070Sx42 |
| 5 | 17.58 | 60000 | | | | K050Sx52 | K060Sx46 | K070Sx52 |

R410A vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | BTU/H | K095S | K105S | K200S | K205S | K215S |
|------|--------|--------|----------|----------|----------|-----------|-----------|
| 4 | 14.06 | 48000 | K095Sx20 | K105Sx20 | | | |
| 5 | 17.58 | 60000 | K095Sx24 | K105Sx24 | | | |
| 7.5 | 26.37 | 90000 | K095Sx36 | K105Sx36 | | | |
| 10 | 35.16 | 120000 | K095Sx48 | K105Sx48 | | | K215SxD22 |
| 12.5 | 43.95 | 150000 | | | K200Sx26 | K205Sx26 | |
| 15 | 52.74 | 180000 | | | K200Sx30 | K205Sx30 | K215SxD30 |
| 20 | 70.32 | 240000 | | | K200Sx40 | K205Sx42 | K215SxD38 |
| 25 | 87.90 | 300000 | | | K200Sx52 | K205Sx54 | K215SxD50 |
| 30 | 105.48 | 360000 | | | K200Sx64 | K205Sx66 | K215SxD58 |
| 40 | 140.64 | 480000 | | | K200Sx96 | K205Sx98 | K215SxD82 |
| 50 | 175.80 | 600000 | | | | K205Sx170 | |

R410A vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | BTU/H | K025 | K030 | K040 | K050 | K060 | K070 |
|-----|-------|-------|---------|---------|---------|---------|----------|---------|
| 0.2 | 0.70 | 2400 | K025x12 | K030x12 | | | | |
| 0.5 | 1.76 | 6000 | K025x20 | K030x20 | K040x12 | | | |
| 1 | 3.52 | 12000 | K025x34 | K030x34 | K040x20 | K050x12 | K060Hx10 | K070x12 |
| 1.5 | 5.27 | 18000 | | | K040x30 | K050x18 | K060Hx16 | K070x16 |
| 2 | 7.03 | 24000 | | | K040x40 | K050x22 | K060Hx20 | K070x20 |
| 2.5 | 8.79 | 30000 | | | | K050x26 | K060Hx22 | K070x24 |
| 3 | 10.55 | 36000 | | | | K050x36 | K060Hx32 | K070x34 |
| 4 | 14.06 | 48000 | | | | K050x46 | K060Hx40 | K070x44 |
| 5 | 17.58 | 60000 | | | | K050x54 | K060Hx48 | K070x52 |

R410A vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | BTU/H | K095 | K105 | K200 | K205 | K215S |
|------|--------|--------|---------|---------|----------|-----------|-----------|
| 3 | 10.55 | 36000 | K095x16 | K105x18 | | | |
| 4 | 14.06 | 48000 | K095x20 | K105x24 | | | |
| 5 | 17.58 | 60000 | K095x24 | K105x30 | | | |
| 7.5 | 26.37 | 90000 | K095x38 | K105x44 | | | |
| 10 | 35.16 | 120000 | K095x50 | K105x56 | | | K215SxD26 |
| 12.5 | 43.95 | 150000 | | | K200Hx30 | K205x28 | |
| 15 | 52.74 | 180000 | | | K200Hx36 | K205x32 | K215SxD34 |
| 20 | 70.32 | 240000 | | | K200Hx48 | K205x44 | K215SxD42 |
| 25 | 87.90 | 300000 | | | K200Hx60 | K205x56 | K215SxD54 |
| 30 | 105.48 | 360000 | | | | K205x70V | K215SxD62 |
| 40 | 140.64 | 480000 | | | | K205x108V | K215SxD86 |

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

Model Selection Chart

R134a vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | BTU/H | K025 | K030 | K040 | K050 | K060 | K070 |
|-----|-------|-------|---------|---------|---------|---------|----------|---------|
| 0.2 | 0.70 | 2400 | K025x8 | K030x8 | | | | |
| 0.5 | 1.76 | 6000 | K025x16 | K030x16 | K040x10 | | | |
| 1 | 3.52 | 12000 | K025x30 | K030x30 | K040x18 | K050x16 | K060Hx14 | K070x16 |
| 1.5 | 5.27 | 18000 | | | K040x24 | K050x22 | K060Hx20 | K070x22 |
| 2 | 7.03 | 24000 | | | K040x32 | K050x28 | K060Hx24 | K070x26 |
| 2.5 | 8.79 | 30000 | | | | K050x34 | K060Hx30 | K070x32 |
| 3 | 10.55 | 36000 | | | | K050x42 | K060Hx38 | K070x40 |
| 4 | 14.06 | 48000 | | | | K050x56 | K060Hx50 | K070x54 |
| 5 | 17.58 | 60000 | | | | K050x68 | K060Hx60 | K070x66 |

R134a vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | BTU/H | K095 | K105 | K200 | K205 | K215D |
|------|--------|--------|---------|---------|-----------|----------|----------|
| 3 | 10.55 | 36000 | K095x18 | K105x18 | | | |
| 4 | 14.06 | 48000 | K095x24 | K105x24 | | | |
| 5 | 17.58 | 60000 | K095x28 | K105x28 | | | |
| 7.5 | 26.37 | 90000 | K095x42 | K105x42 | | | |
| 10 | 35.16 | 120000 | K095x56 | K105x56 | K200Hx30 | K205x20 | K215Dx18 |
| 12.5 | 43.95 | 150000 | | | K200Hx38 | K205x26 | |
| 15 | 52.74 | 180000 | | | K200Hx46 | K205x30 | K215Dx30 |
| 20 | 70.32 | 240000 | | | K200Hx60 | K205x42 | K215Dx38 |
| 25 | 87.90 | 300000 | | | K200Hx76 | K205x54 | K215Dx50 |
| 30 | 105.48 | 360000 | | | K200Hx90 | K205x66 | K215Dx58 |
| 40 | 140.64 | 480000 | | | K200Hx120 | K205x98 | K215Dx82 |
| 50 | 175.80 | 600000 | | | | K205x138 | |

R134a vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | BTU/H | K025 | K030 | K040 | K050 | K060 | K070 |
|-----|-------|-------|---------|---------|---------|---------|----------|---------|
| 0.2 | 0.70 | 2400 | K025x12 | K030x12 | | | | |
| 0.5 | 1.76 | 6000 | K025x20 | K030x20 | K040x12 | | | |
| 1 | 3.52 | 12000 | K025x36 | K030x36 | K040x20 | K050x14 | K060Mx14 | K070x14 |
| 1.5 | 5.27 | 18000 | | | K040x32 | K050x18 | K060Mx18 | K070x18 |
| 2 | 7.03 | 24000 | | | K040x40 | K050x22 | K060Mx22 | K070x20 |
| 2.5 | 8.79 | 30000 | | | | K050x28 | K060Mx28 | K070x26 |
| 3 | 10.55 | 36000 | | | | K050x36 | K060Mx36 | K070x34 |
| 4 | 14.06 | 48000 | | | | K050x44 | K060Mx44 | K070x42 |
| 5 | 17.58 | 60000 | | | | K050x56 | K060Mx56 | K070x54 |

R134a vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | BTU/H | K095 | K105 | K200 | K205 | K215D |
|------|--------|--------|---------|---------|----------|-----------|------------|
| 2.5 | 8.79 | 30000 | K095x16 | K105x20 | | | |
| 3 | 10.55 | 36000 | K095x20 | K105x24 | | | |
| 4 | 14.06 | 48000 | K095x24 | K105x30 | | | |
| 5 | 17.58 | 60000 | K095x30 | K105x36 | | | |
| 7.5 | 26.37 | 90000 | K095x46 | K105x54 | | | |
| 10 | 35.16 | 120000 | K095x64 | K105x84 | K200Hx32 | K205x32 | K215Dx34 |
| 12.5 | 43.95 | 150000 | | | K200Hx38 | K205x40 | |
| 15 | 52.74 | 180000 | | | K200Hx46 | K205x48 | K215Dx46 |
| 20 | 70.32 | 240000 | | | K200Hx60 | K205x64V | K215Dx62 |
| 25 | 87.90 | 300000 | | | | K205x84V | K215Dx78 |
| 30 | 105.48 | 360000 | | | | K205x108V | K215Dx94 |
| 40 | 140.64 | 480000 | | | | K205x180V | K215Dx126V |

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

Model Selection Chart

R407C vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | BTU/H | K025 | K030 | K040 | K050 | K060 | K070 |
|-----|-------|-------|---------|---------|---------|---------|----------|---------|
| 0.2 | 0.70 | 2400 | K025x12 | K030x12 | | | | |
| 0.5 | 1.76 | 6000 | K025x26 | K030x26 | K040x14 | | | |
| 1 | 3.52 | 12000 | K025x44 | K030x44 | K040x24 | K050x20 | K060Hx18 | K070x18 |
| 1.5 | 5.27 | 18000 | | | K040x32 | K050x30 | K060Hx26 | K070x28 |
| 2 | 7.03 | 24000 | | | K040x42 | K050x38 | K060Hx34 | K070x36 |
| 2.5 | 8.79 | 30000 | | | | K050x50 | K060Hx44 | K070x48 |
| 3 | 10.55 | 36000 | | | | K050x60 | K060Hx54 | K070x58 |
| 4 | 14.06 | 48000 | | | | K050x76 | K060Hx68 | K070x74 |

R407C vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | BTU/H | K095 | K105 | K200 | K205 | K215D |
|------|--------|--------|---------|---------|-----------|----------|-----------|
| 2 | 7.03 | 24000 | K095x18 | K105x18 | | | |
| 2.5 | 8.79 | 30000 | K095x20 | K105x20 | | | |
| 3 | 10.55 | 36000 | K095x26 | K105x28 | | | |
| 4 | 14.06 | 48000 | K095x36 | K105x38 | | | |
| 5 | 17.58 | 60000 | K095x44 | K105x48 | | | |
| 7.5 | 26.37 | 90000 | K095x66 | K105x72 | K200Hx36 | K205x34 | |
| 10 | 35.16 | 120000 | K095x88 | K105x96 | K200Hx46 | K205x42 | K215Dx42 |
| 12.5 | 43.95 | 150000 | | | K200Hx58 | K205x54 | |
| 15 | 52.74 | 180000 | | | K200Hx70 | K205x64 | K215Dx66 |
| 20 | 70.32 | 240000 | | | K200Hx94 | K205x86 | K215Dx82 |
| 25 | 87.90 | 300000 | | | K200Hx118 | K205x108 | K215Dx106 |
| 30 | 105.48 | 360000 | | | K200Hx140 | K205x128 | K215Dx126 |
| 40 | 140.64 | 480000 | | | | K205x176 | K215Dx170 |

R407C vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | BTU/H | K025 | K030 | K040 | K050 | K060 | K070 |
|-----|-------|-------|---------|---------|---------|---------|----------|---------|
| 0.2 | 0.70 | 2400 | K025x10 | K030x10 | | | | |
| 0.5 | 1.76 | 6000 | K025x16 | K030x16 | K040x10 | | | |
| 1 | 3.52 | 12000 | K025x28 | K030x28 | K040x14 | K050x10 | K060Mx10 | K070x10 |
| 1.5 | 5.27 | 18000 | | | K040x20 | K050x14 | K060Mx14 | K070x14 |
| 2 | 7.03 | 24000 | | | K040x26 | K050x16 | K060Mx16 | K070x16 |
| 2.5 | 8.79 | 30000 | | | | K050x18 | K060Mx18 | K070x18 |
| 3 | 10.55 | 36000 | | | | K050x22 | K060Mx22 | K070x22 |
| 4 | 14.06 | 48000 | | | | K050x28 | K060Mx30 | K070x28 |
| 5 | 17.58 | 60000 | | | | K050x36 | K060Mx40 | K070x36 |

R407C vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | BTU/H | K095 | K105 | K200 | K205 | K215D |
|------|--------|--------|---------|---------|----------|-----------|----------|
| 4 | 14.06 | 48000 | K095x20 | K105x18 | | | |
| 5 | 17.58 | 60000 | K095x24 | K105x22 | | | |
| 7.5 | 26.37 | 90000 | K095x38 | K105x38 | | | |
| 10 | 35.16 | 120000 | K095x50 | K105x50 | | | K215Dx22 |
| 12.5 | 43.95 | 150000 | | | K200Hx28 | K205x28 | |
| 15 | 52.74 | 180000 | | | K200Hx34 | K205x34 | K215Dx30 |
| 20 | 70.32 | 240000 | | | K200Hx44 | K205x44 | K215Dx42 |
| 25 | 87.90 | 300000 | | | K200Hx56 | K205x58 | K215Dx54 |
| 30 | 105.48 | 360000 | | | | K205x72V | K215Dx66 |
| 40 | 140.64 | 480000 | | | | K205x110V | K215Dx86 |

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

Model Selection Chart

R404A vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | BTU/H | K025 | K030 | K040 | K050 | K060 | K070 |
|-----|-------|-------|---------|---------|---------|---------|----------|---------|
| 0.2 | 0.70 | 2400 | K025x10 | K030x10 | | | | |
| 0.5 | 1.76 | 6000 | K025x18 | K030x18 | K040x10 | | | |
| 1 | 3.52 | 12000 | K025x32 | K030x32 | K040x16 | K050x16 | K060xH12 | K070x14 |
| 1.5 | 5.27 | 18000 | | | K040x22 | K050x22 | K060xH18 | K070x20 |
| 2 | 7.03 | 24000 | | | K040x28 | K050x28 | K060xH22 | K070x26 |
| 2.5 | 8.79 | 30000 | | | | K050x34 | K060xH26 | K070x32 |
| 3 | 10.55 | 36000 | | | | K050x40 | K060xH30 | K070x38 |
| 4 | 14.06 | 48000 | | | | K050x54 | K060xH40 | K070x52 |
| 5 | 17.58 | 60000 | | | | K050x66 | K060xH50 | K070x64 |

R404A vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | BTU/H | K095 | K105 | K200 | K205 | K215D |
|------|--------|--------|---------|---------|-----------|----------|-----------|
| 4 | 14.06 | 48000 | K095x24 | K105x24 | | | |
| 5 | 17.58 | 60000 | K095x28 | K105x30 | | | |
| 7.5 | 26.37 | 90000 | K095x42 | K105x44 | | | |
| 10 | 35.16 | 120000 | K095x56 | K105x58 | K200xH30 | K205x28 | K215Dx26 |
| 12.5 | 43.95 | 150000 | K095x70 | K105x72 | K200xH38 | K205x34 | |
| 15 | 52.74 | 180000 | | | K200xH48 | K205x42 | K215Dx42 |
| 20 | 70.32 | 240000 | | | K200xH62 | K205x54 | K215Dx54 |
| 25 | 87.9 | 300000 | | | K200xH78 | K205x68 | K215Dx66 |
| 30 | 105.48 | 360000 | | | K200xH94 | K205x82 | K215Dx82 |
| 40 | 140.64 | 480000 | | | K200xH124 | K205x110 | K215Dx110 |
| 50 | 175.8 | 600000 | | | K200xH154 | K205x140 | K215Dx138 |

R404A vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | BTU/H | K025 | K030 | K040 | K050 | K060 | K070 |
|-----|-------|-------|---------|---------|---------|---------|----------|---------|
| 0.2 | 0.70 | 2400 | K025x12 | K030x12 | | | | |
| 0.5 | 1.76 | 6000 | K025x24 | K030x24 | K040x12 | | | |
| 1 | 3.52 | 12000 | K025x46 | K030x46 | K040x22 | K050x14 | K060xH12 | K070x14 |
| 1.5 | 5.27 | 18000 | | | K040x32 | K050x20 | K060xH16 | K070x18 |
| 2 | 7.03 | 24000 | | | K040x40 | K050x26 | K060xH20 | K070x24 |
| 2.5 | 8.79 | 30000 | | | | K050x34 | K060xH24 | K070x32 |
| 3 | 10.55 | 36000 | | | | K050x44 | K060xH30 | K070x40 |
| 4 | 14.06 | 48000 | | | | K050x56 | K060xH38 | K070x52 |
| 5 | 17.58 | 60000 | | | | K050x70 | K060xH48 | K070x64 |

R404A vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | BTU/H | K095 | K105 | K200 | K205 | K215D |
|------|--------|--------|---------|---------|-----------|----------|-----------|
| 2.5 | 8.79 | 30000 | K095x14 | K105x16 | | | |
| 3 | 10.55 | 36000 | K095x16 | K105x18 | | | |
| 4 | 14.06 | 48000 | K095x20 | K105x24 | | | |
| 5 | 17.58 | 60000 | K095x26 | K105x30 | | | |
| 7.5 | 26.37 | 90000 | K095x40 | K105x46 | | | |
| 10 | 35.16 | 120000 | K095x54 | K105x62 | K200xH30 | K205x26 | K215Dx26 |
| 12.5 | 43.95 | 150000 | K095x70 | K105x80 | K200xH36 | K205x32 | |
| 15 | 52.74 | 180000 | | | K200xH42 | K205x38 | K215Dx38 |
| 20 | 70.32 | 240000 | | | K200xH54 | K205x50 | K215Dx50 |
| 25 | 87.9 | 300000 | | | K200xH68 | K205x62 | K215Dx62 |
| 30 | 105.48 | 360000 | | | K200xH82 | K205x76 | K215Dx74 |
| 40 | 140.64 | 480000 | | | K200xH114 | K205x108 | K215Dx106 |

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

R Series-High Heat Transfer Performance Brazed Plate Heat Exchanger

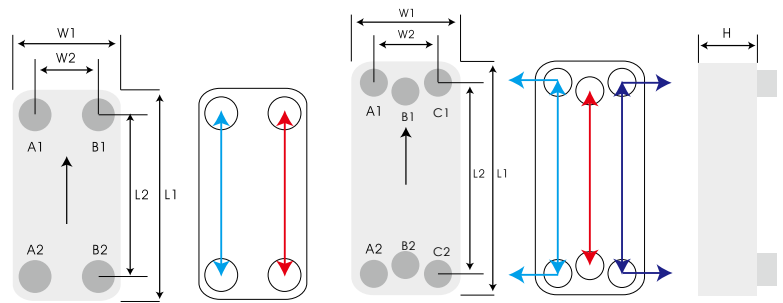


R Series high heat transfer BPHE is designed with micro channel pattern, it is specially designed for high enthalpy refrigerant. This makes R series to perform better than K series. Compact design also reduce the thickness, weight and internal volume of the BPHE, making the installation easier.

Applicable refrigerants: R32, R290, R445B, R410A new generation eco-friendly refrigerants.

Main Application: Heat pump, chiller and HVAC system.

| Brazing Material | Copper | Copper (Extra Strength) |
|-------------------------------|------------------------------------|------------------------------------|
| Model | R020, R040, R050, R095, R200, R215 | R021, R041, R051, R096, R201, R216 |
| | (A1,A2/B1,B2) | |
| Max. Working Pressure (psi) | 435.1/435.1 | 652.7/435.1 |
| Max. Working Temperature (°F) | 392°F | |



R215D/R216D: Dual Circuits- 6 Connections

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| R020 | 7.52 | 6.06 | 3.03 | 1.57 | 0.276+0.045*N | 1.367+0.093*N | 0.119 | (N-2)*0.119 | 0.002 | (N-1)*0.002 |
| R040 | 12.24 | 10.94 | 2.87 | 1.57 | 0.295+0.051*N | 1.389+0.154*N | 0.210 | (N-2)*0.210 | 0.004 | (N-1)*0.004 |
| R050 | 12.05 | 9.84 | 4.17 | 1.97 | 0.366+0.071*N | 2.646+0.196*N | 0.274 | (N-2)*0.274 | 0.010 | (N-1)*0.010 |
| R095 | 20.55 | 18.35 | 4.17 | 1.97 | 0.394+0.073*N | 6.063+0.353*N | 0.511 | (N-2)*0.511 | 0.020 | (N-1)*0.020 |
| R200 | 24.13 | 20.43 | 7.32 | 3.62 | 0.551+0.081*N | 15.300+0.849*N | 1.017 | (N-2)*1.017 | 0.046 | (N-1)*0.046 |
| R215 | 20.83 | 17.68 | 9.72 | 6.57 | 0.512+0.073*N | 17.461+0.948*N | 1.187 | (N-2)*1.187 | 0.049 | (N-1)*0.049 |

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| R021 | 7.52 | 6.06 | 3.03 | 1.57 | 0.276+0.045*N | 1.367+0.093*N | 0.119 | (N-2)*0.119 | 0.002 | (N-1)*0.002 |
| R041 | 12.24 | 10.94 | 2.87 | 1.57 | 0.295+0.051*N | 1.389+0.154*N | 0.210 | (N-2)*0.210 | 0.004 | (N-1)*0.004 |
| R051 | 12.05 | 9.84 | 4.17 | 1.97 | 0.445+0.071*N | 4.894+0.196*N | 0.274 | (N-2)*0.274 | 0.010 | (N-1)*0.010 |
| R096 | 20.55 | 18.35 | 4.17 | 1.97 | 0.394+0.073*N | 6.239+0.353*N | 0.511 | (N-2)*0.511 | 0.020 | (N-1)*0.020 |
| R201 | 24.13 | 20.43 | 7.32 | 3.62 | 0.669+0.081*N | 26.081+0.849*N | 1.017 | (N-2)*1.017 | 0.046 | (N-1)*0.046 |
| R216 | 20.83 | 17.68 | 9.72 | 6.57 | 0.630+0.073*N | 29.784+0.948*N | 1.187 | (N-2)*1.187 | 0.049 | (N-1)*0.049 |

N: number of plates

Model Selection Chart

R290 vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | BTU/H | R020 | R040 | R050 | R095 |
|-----|------|-------|----------|---------|---------|------|
| 0.2 | 0.7 | 2400 | R020Hx8 | | | |
| 0.5 | 1.76 | 6000 | R020Hx14 | | | |
| 1 | 3.52 | 12000 | R020Hx22 | | R050x10 | |
| 1.5 | 5.27 | 18000 | R020Hx32 | R040x18 | R050x14 | |
| 2 | 7.03 | 24000 | R020Hx42 | R040x24 | R050x18 | |
| 2.5 | 8.79 | 30000 | | R040x30 | R050x22 | |

| RT | kW | BTU/H | R020 | R040 | R050 | R095 |
|------|-------|--------|------|---------|---------|----------|
| 3 | 10.55 | 36000 | | R040x38 | R050x26 | |
| 4 | 14.06 | 48000 | | | R050x34 | R095Mx20 |
| 5 | 17.58 | 60000 | | | R050x42 | R095Mx24 |
| 7.5 | 26.37 | 90000 | | | R050x60 | R095Mx36 |
| 10 | 35.16 | 120000 | | | R050x80 | R095Mx46 |
| 12.5 | 43.95 | 150000 | | | | R095Mx58 |
| 15 | 52.74 | 180000 | | | | R095Mx70 |

Model Selection Chart

R410A vs. Water Condenser Based on ARI-450 Standard

| RT | kW | BTU/H | R021 | R051 | R096 | R201 |
|------|--------|--------|----------|---------|-----------|----------|
| 0.2 | 0.7 | 2400 | R021xH6 | | | |
| 0.5 | 1.76 | 6000 | R021xH12 | | | |
| 1 | 3.52 | 12000 | R021xH22 | R051x10 | | |
| 1.5 | 5.27 | 18000 | R021xH32 | R051x14 | | |
| 2 | 7.03 | 24000 | R021xH42 | R051x16 | | |
| 2.5 | 8.79 | 30000 | R021xH52 | R051x20 | | |
| 3 | 10.55 | 36000 | | R051x24 | | |
| 4 | 14.06 | 48000 | | R051x30 | R096xM18 | |
| 5 | 17.58 | 60000 | | R051x38 | R096xM24 | |
| 7.5 | 26.37 | 90000 | | R051x56 | R096xM34 | |
| 10 | 35.16 | 120000 | | R051x74 | R096xM46 | R201x24 |
| 12.5 | 43.95 | 150000 | | | R096xM58 | R201x30 |
| 15 | 52.74 | 180000 | | | R096xM72 | R201x36 |
| 20 | 70.32 | 240000 | | | R096xM100 | R201x48 |
| 25 | 87.90 | 300000 | | | | R201x60 |
| 30 | 105.8 | 360000 | | | | R201x74 |
| 40 | 140.64 | 480000 | | | | R201x106 |
| 50 | 175.80 | 600000 | | | | R201x150 |

R410A vs. Water Evaporator Based on ARI-480 Standard

| RT | kW | BTU/H | R020 | R050 | R095 | R200 |
|------|--------|--------|----------|---------|-----------|----------|
| 0.2 | 0.7 | 2400 | R020xH8 | | | |
| 0.5 | 1.76 | 6000 | R020xH16 | | | |
| 1 | 3.52 | 12000 | R020xH26 | R050x10 | | |
| 1.5 | 5.27 | 18000 | R020xH38 | R050x14 | | |
| 2 | 7.03 | 24000 | R020xH50 | R050x18 | | |
| 3 | 10.55 | 36000 | | R050x20 | | |
| 4 | 14.06 | 48000 | | R050x24 | R095xM20 | |
| 5 | 17.58 | 60000 | | R050x32 | R095xM24 | |
| 7.5 | 26.37 | 90000 | | R050x40 | R095xM36 | |
| 10 | 35.16 | 120000 | | R050x62 | R095xM48 | R200x24 |
| 12.5 | 43.95 | 150000 | | R050x90 | R095xM62 | R200x30 |
| 15 | 52.74 | 180000 | | | R095xM76 | R200x36 |
| 20 | 70.32 | 240000 | | | R095xM108 | R200x48 |
| 25 | 87.90 | 300000 | | | | R200x60 |
| 30 | 105.8 | 360000 | | | | R200x74 |
| 40 | 140.64 | 480000 | | | | R200x106 |
| 50 | 175.80 | 600000 | | | | R200x150 |

R134a vs. Water Condenser Based on ARI-450 Standard

| RT | kW | BTU/H | R020 | R050 | R095 | R200 |
|------|--------|--------|----------|---------|----------|----------|
| 0.2 | 0.7 | 2400 | R020xH6 | | | |
| 0.5 | 1.76 | 6000 | R020xH14 | | | |
| 1 | 3.52 | 12000 | R020xH26 | R050x12 | | |
| 1.5 | 5.27 | 18000 | R020xH38 | R050x18 | | |
| 2 | 7.03 | 24000 | R020xH50 | R050x22 | | |
| 2.5 | 8.79 | 30000 | | R050x28 | | |
| 3 | 10.55 | 36000 | | R050x34 | R095xH14 | |
| 4 | 14.06 | 48000 | | R050x44 | R095xH20 | |
| 5 | 17.58 | 60000 | | R050x54 | R095xH24 | |
| 7.5 | 26.37 | 90000 | | R050x80 | R095xH36 | |
| 10 | 35.16 | 120000 | | | R095xH50 | R200x24 |
| 12.5 | 43.95 | 150000 | | | R095xH64 | R200x30 |
| 15 | 52.74 | 180000 | | | R095xH80 | R200x36 |
| 20 | 70.32 | 240000 | | | | R200x48 |
| 25 | 87.90 | 300000 | | | | R200x60 |
| 30 | 105.48 | 360000 | | | | R200x74 |
| 40 | 140.64 | 480000 | | | | R200x106 |
| 50 | 175.80 | 600000 | | | | R200x150 |

R134a vs. Water Evaporator Based on ARI-480 Standard

| RT | kW | BTU/H | R020 | R050 | R095 | R200 |
|------|--------|--------|----------|---------|-----------|----------|
| 0.2 | 0.7 | 2400 | R020xH8 | | | |
| 0.5 | 1.76 | 6000 | R020xH16 | | | |
| 1 | 3.52 | 12000 | R020xH26 | R050x12 | | |
| 1.5 | 5.27 | 18000 | R020xH38 | R050x16 | | |
| 2 | 7.03 | 24000 | R020xH50 | R050x20 | | |
| 2.5 | 8.79 | 30000 | | R050x24 | | |
| 3 | 10.55 | 36000 | | R050x30 | R095xH18 | |
| 4 | 14.06 | 48000 | | R050x38 | R095xH22 | |
| 5 | 17.58 | 60000 | | R050x50 | R095xH28 | |
| 7.5 | 26.37 | 90000 | | R050x76 | R095xH44 | |
| 10 | 35.16 | 120000 | | | R095xH60 | R200x30 |
| 12.5 | 43.95 | 150000 | | | R095xH80 | R200x36 |
| 15 | 52.74 | 180000 | | | R095xH110 | R200x44 |
| 20 | 70.32 | 240000 | | | | R200x58 |
| 25 | 87.90 | 300000 | | | | R200x74 |
| 30 | 105.48 | 360000 | | | | R200x88 |
| 40 | 140.64 | 480000 | | | | R200x120 |
| 50 | 175.80 | 600000 | | | | R200x160 |

R32 vs. Water Condenser Based on ARI-450 Standard

| RT | kW | BTU/H | R021 | R051 | R096 | R201 |
|------|--------|--------|----------|---------|----------|----------|
| 0.2 | 0.7 | 2400 | R021xH6 | | | |
| 0.5 | 1.76 | 6000 | R021xH10 | | | |
| 1 | 3.52 | 12000 | R021xH18 | R051x10 | | |
| 1.5 | 5.27 | 18000 | R021xH26 | R051x12 | | |
| 2 | 7.03 | 24000 | R021xH36 | R051x14 | | |
| 2.5 | 8.79 | 30000 | R021xH44 | R051x18 | | |
| 3 | 10.55 | 36000 | | R051x20 | | |
| 4 | 14.06 | 48000 | | R051x26 | R096xM16 | |
| 5 | 17.58 | 60000 | | R051x32 | R096xM20 | |
| 7.5 | 26.37 | 90000 | | R051x48 | R096xM30 | |
| 10 | 35.16 | 120000 | | R051x64 | R096xM40 | R201x24 |
| 12.5 | 43.95 | 150000 | | | R096xM50 | R201x30 |
| 15 | 52.74 | 180000 | | | R096xM62 | R201x36 |
| 20 | 70.32 | 240000 | | | R096xM86 | R201x48 |
| 25 | 87.90 | 300000 | | | | R201x60 |
| 30 | 105.48 | 360000 | | | | R201x74 |
| 40 | 140.64 | 480000 | | | | R201x106 |
| 50 | 175.80 | 600000 | | | | R201x150 |

R32 vs. Water Evaporator Based on ARI-480 Standard

| RT | kW | BTU/H | R020 | R050 | R095 | R200 |
|------|--------|--------|----------|----------|-----------|----------|
| 0.2 | 0.7 | 2400 | R020xH10 | | | |
| 0.5 | 1.76 | 6000 | R020xH18 | | | |
| 1 | 3.52 | 12000 | R020xH30 | R050x10 | | |
| 1.5 | 5.27 | 18000 | R020xH42 | R050x14 | | |
| 2 | 7.03 | 24000 | R020xH54 | R050x18 | | |
| 2.5 | 8.79 | 30000 | | R050x22 | | |
| 3 | 10.55 | 36000 | | R050x26 | | |
| 4 | 14.06 | 48000 | | R050x36 | R095xH22 | |
| 5 | 17.58 | 60000 | | R050x48 | R095xH26 | |
| 7.5 | 26.37 | 90000 | | R050x72 | R095xH38 | |
| 10 | 35.16 | 120000 | | R050x102 | R095xH52 | R200x24 |
| 12.5 | 43.95 | 150000 | | | R095xH66 | R200x30 |
| 15 | 52.74 | 180000 | | | R095xH80 | R200x36 |
| 20 | 70.32 | 240000 | | | R095xH112 | R200x48 |
| 25 | 87.90 | 300000 | | | | R200x60 |
| 30 | 105.48 | 360000 | | | | R200x74 |
| 40 | 140.64 | 480000 | | | | R200x106 |
| 50 | 175.80 | 600000 | | | | R200x150 |

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

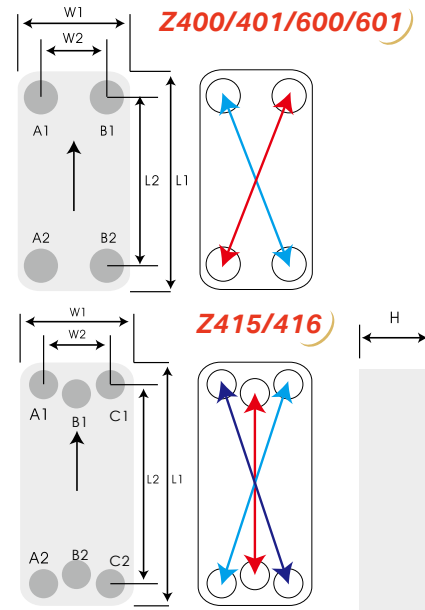
Z Series-Large Diagonal Flow Brazed Plate Heat Exchanger



The newly innovative Z series is designed with a diagonal flow pattern, providing higher efficiency to replace traditional shell and tube, double tube or multi-tube heat exchangers in various applications. The advantage of Z series dual circuits is to provide the best performance in both full load and part load conditions. Z series single circuit is specially designed for large flow rate meeting high heat transfer efficiency requirement.

Main Application: Refrigeration, Process Cooling, ORC

Z400/401/600/601:
Single Circuit, 4 Connections.
Z415/416:
Dual Circuits, 6 Connections.



| Brazing Material | Copper | | Copper(Extra Strength) | |
|-------------------------------|---------------|---------------------|------------------------|---------------------|
| Model | Z400/Z600 | Z415 | Z401/Z601 | Z416 |
| | (A2,B1/A1,B2) | (A2,C1/A1,C2/B1,B2) | (A2,B1/A1,B2) | (A2,C1/A1,C2/B1,B2) |
| Max. Working Pressure (psi) | 435.1/435.1 | 435.1/435.1/30 | 652.7/435.1 | 45/652.7/435.1 |
| Max. Working Temperature (°F) | 392°F | | | |

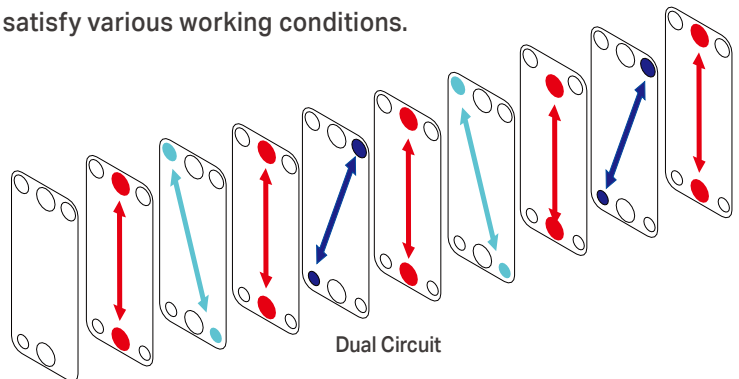
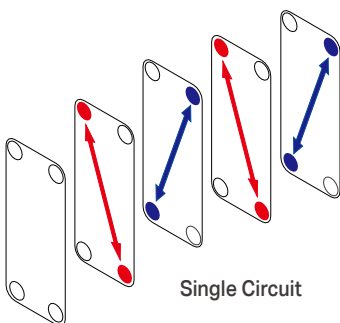
* For nickel brazing requirement of Z Series, please contact KAORI representative.

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| Z400 | 29.57 | 25.59 | 12.64 | 8.66 | 0.551+0.094*N | 66.183+1.962*N | 2.232 | (N-2)*2.232 | 0.112 | (N-1)*0.112 |
| Z415 | 29.57 | 25.83 | 12.64 | 8.90 | 0.551+0.094*N | 65.654+1.918*N | 2.232 | (N-2)*2.232 | 0.109 | (N-1)*0.109 |
| Z600 | 37.20 | 31.89 | 14.76 | 9.45 | 0.551+0.094*N | 116.823+2.712*N | 3.229 | (N-2)*3.229 | 0.164 | (N-1)*0.164 |

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| Z401 | 29.57 | 25.59 | 12.64 | 8.66 | 0.906+0.094*N | 80.557+1.962*N | 2.232 | (N-2)*2.232 | 0.112 | (N-1)*0.112 |
| Z416 | 29.57 | 25.83 | 12.64 | 8.90 | 0.906+0.094*N | 79.940+1.918*N | 2.232 | (N-2)*2.232 | 0.109 | (N-1)*0.109 |
| Z601 | 37.20 | 31.89 | 14.76 | 9.45 | 1.471+0.094*N | 117.528+2.712*N | 3.229 | (N-2)*3.229 | 0.164 | (N-1)*0.164 |

N: number of plates

Z series is designed with 2 different flow channels which satisfy various working conditions.



Model Selection Chart

R134a vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | kBTU/H | Z400 | Z415 | Z600 |
|-----|--------|--------|-----------|----------|-----------|
| 40 | 140.64 | 480 | Z400xM58 | Z415x58 | |
| 50 | 175.80 | 600 | Z400xM72 | Z415x74 | |
| 60 | 210.96 | 720 | Z400xM84 | Z415x86 | |
| 75 | 263.70 | 900 | Z400xM106 | Z415x106 | |
| 100 | 351.60 | 1200 | Z400xM140 | Z415x142 | Z600xM124 |
| 125 | 439.50 | 1500 | Z400xM176 | Z415x178 | Z600xM156 |
| 150 | 527.40 | 1800 | | | Z600xM190 |

R134a vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | kBTU/H | Z400 | Z415 | Z600 |
|-----|--------|--------|-----------|----------|-----------|
| 40 | 140.64 | 480 | Z400xH64 | Z415x66 | |
| 50 | 175.80 | 600 | Z400xH80 | Z415x82 | |
| 60 | 210.96 | 720 | Z400xH98 | Z415x98 | |
| 75 | 263.70 | 900 | Z400xH126 | Z415x126 | |
| 100 | 351.60 | 1200 | Z400xH170 | Z415x170 | Z600xH152 |
| 125 | 439.50 | 1500 | Z400xH220 | Z415x222 | Z600xH196 |
| 150 | 527.40 | 1800 | | | Z600xH240 |

R407C vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | kBTU/H | Z400 | Z415 | Z600 |
|-----|--------|--------|-----------|----------|-----------|
| 40 | 140.64 | 480 | Z400xH82 | Z415x82 | |
| 50 | 175.80 | 600 | Z400xH102 | Z415x102 | |
| 60 | 210.96 | 720 | Z400xH122 | Z415x122 | |
| 75 | 263.70 | 900 | Z400xH152 | Z415x154 | |
| 100 | 351.60 | 1200 | Z400xH206 | Z415x206 | Z600xH144 |
| 125 | 439.50 | 1500 | | | Z600xH180 |
| 150 | 527.40 | 1800 | | | Z600xH218 |

R407C vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | kBTU/H | Z400 | Z415 | Z600 |
|-----|--------|--------|-----------|----------|-----------|
| 40 | 140.64 | 480 | Z400xM50 | Z415x50 | |
| 50 | 175.80 | 600 | Z400xM62 | Z415x62 | |
| 60 | 210.96 | 720 | Z400xM76 | Z415x78 | |
| 75 | 263.70 | 900 | Z400xM96 | Z415x98 | |
| 100 | 351.60 | 1200 | Z400xM130 | Z415x130 | Z600xM106 |
| 125 | 439.50 | 1500 | Z400xM172 | Z415x174 | Z600xM140 |
| 150 | 527.40 | 1800 | | | Z600xM180 |

R410A vs. Water Condenser

Based on ARI-450 Standard

| RT | kW | kBTU/H | Z401 | Z416 | Z601 |
|-----|--------|--------|-----------|----------|-----------|
| 40 | 140.64 | 480 | Z401xM48 | Z416x50 | |
| 50 | 175.80 | 600 | Z401xM60 | Z416x62 | |
| 60 | 210.96 | 720 | Z401xM72 | Z416x74 | |
| 75 | 263.70 | 900 | Z401xM90 | Z416x90 | |
| 100 | 351.60 | 1200 | Z401xM120 | Z416x126 | Z601xM72 |
| 125 | 439.50 | 1500 | Z401xM150 | Z416x162 | Z601xM90 |
| 150 | 527.40 | 1800 | | | Z601xM110 |
| 175 | 615.30 | 2100 | | | Z601xM128 |
| 200 | 703.20 | 2400 | | | Z601xM146 |
| 225 | 791.10 | 2700 | | | Z601xM164 |

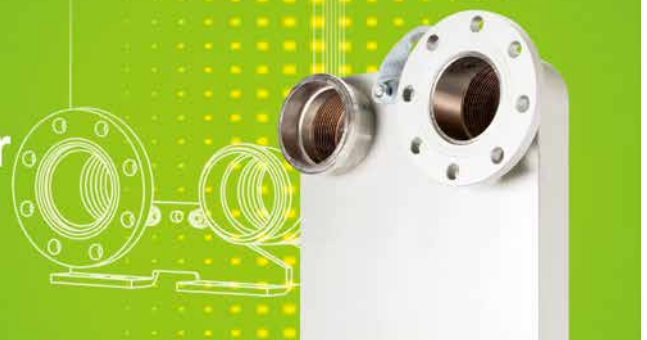
R410A vs. Water Evaporator

Based on ARI-480 Standard

| RT | kW | kBTU/H | Z400 | Z415 | Z600 |
|-----|--------|--------|-----------|----------|-----------|
| 40 | 140.64 | 480 | Z400xH50 | Z415x50 | |
| 50 | 175.80 | 600 | Z400xH62 | Z415x62 | |
| 60 | 210.96 | 720 | Z400xH76 | Z415x78 | |
| 75 | 263.70 | 900 | Z400xH96 | Z415x98 | |
| 100 | 351.60 | 1200 | Z400xH130 | Z415x130 | Z600xM126 |
| 125 | 439.50 | 1500 | Z400xH172 | Z415x174 | Z600xM160 |
| 150 | 527.40 | 1800 | | | Z600xM200 |

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

Let's **SAVE** the world together



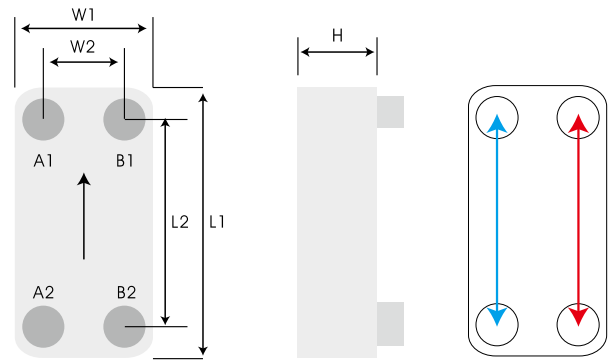
C Series-CO₂ Super High Pressure Brazed Plate Heat Exchanger



KAORI patented solution with C series is specially designed for Gas cooler, condenser, evaporator and economizer in R744 (CO₂) heat pump and refrigeration system. Different designs with max. working pressure 2030.5 psi, 1450.4 psi and 1015.3 psi are available for Supercritical, Transcritical and Subcritical CO₂ 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 C series is proven by thorough inspection, achieving the burst test pressure up to 2074 psi and cycle test over 100,000 cycles.

| Brazing Material | Copper | | |
|-------------------------------|---------------|---------------|---------------|
| Model | C020,C040 | C021,C041 | C022,C042 |
| | C095,C200 | C096,C201 | C097,C202 |
| | (A1,A2/B1,B2) | | |
| Max. Working Pressure (psi) | 1015.3/435.1* | 1450.4/435.1* | 2030.5/435.1* |
| Max. Working Temperature (°F) | 392°F | | |



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

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| C020 | 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 |
| C040 | 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 |
| C095 | 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 |
| C200 | 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*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| C021 | 7.52 | 6.06 | 3.03 | 1.57 | 0.374+0.043*N | 2.513+0.093*N | 0.119 | (N-4)*0.119 | 0.002 | (N-3)*0.002 |
| C041 | 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 |
| C096 | 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 |
| C201 | 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*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| C022 | 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 |
| C042 | 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 |
| C097 | 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 |
| C202 | 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

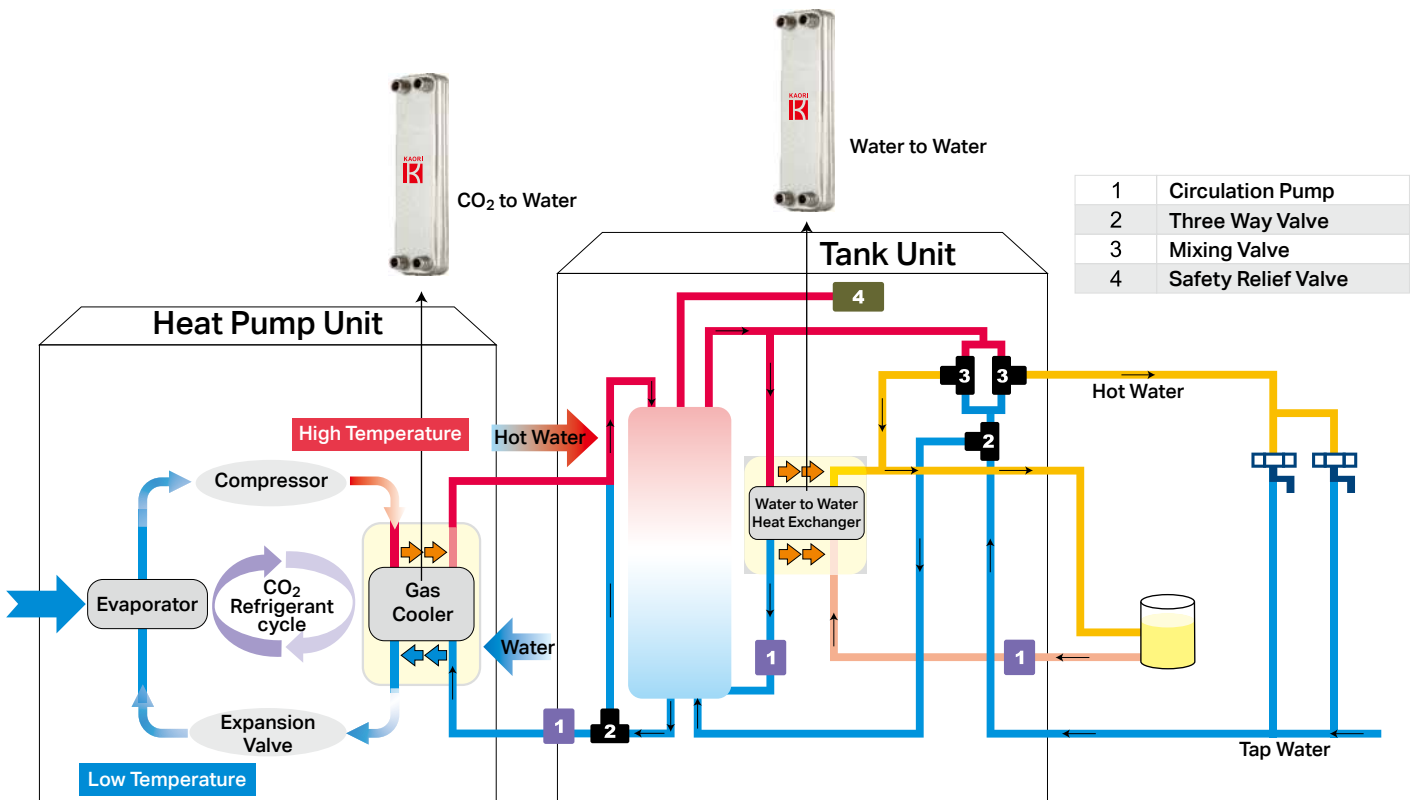
Model Selection Chart

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

| RT | kW | BTU/H | C020/C021/C022 | C040/C041/C042 | C095/C096/C097 | C200/C201/C202 |
|------|--------|--------|------------------|------------------|------------------|--------------------|
| 1 | 3.52 | 12000 | C022x36 (4 Pass) | C042x24 (4 Pass) | | |
| 1.5 | 5.27 | 18000 | C022x44 (4 Pass) | C042x32 (4 Pass) | | |
| 2 | 7.03 | 24000 | C022x52 (4 Pass) | C042x40 (4 Pass) | C097x24 (4 Pass) | |
| 3 | 10.55 | 36000 | | | C097x24 (4 Pass) | |
| 4 | 14.06 | 48000 | | | C097x32 (4 Pass) | |
| 5 | 17.58 | 60000 | | | C097x40 (4 Pass) | C0202x24 (3 Pass) |
| 7.5 | 26.37 | 90000 | | | C097x48 (4 Pass) | C0202x30 (3 Pass) |
| 10 | 35.16 | 120000 | | | C097x64 (4 Pass) | C0202x36 (3 Pass) |
| 12.5 | 43.95 | 150000 | | | C097x72 (4 Pass) | C0202x48 (3 Pass) |
| 15 | 52.74 | 180000 | | | C097x88 (4 Pass) | C0202x54 (3 Pass) |
| 20 | 70.32 | 240000 | | | | C0202x66 (3 Pass) |
| 25 | 87.90 | 300000 | | | | C0202x84 (3 Pass) |
| 30 | 105.48 | 360000 | | | | C0202x102 (3 Pass) |
| 35 | 123.06 | 420000 | | | | C0202x114 (3 Pass) |
| 40 | 140.64 | 480000 | | | | C0202x132 (3 Pass) |

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

CO₂ Heat Pump System

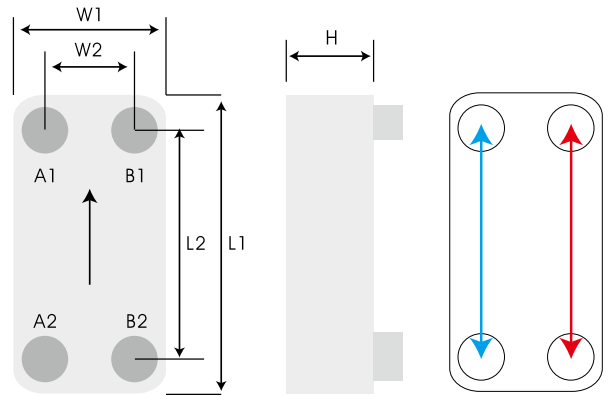


B Series-Asymmetric Brazed Plate Heat Exchanger



The new KAORI B Series delivers an effective operating range up to 100kW for heat pumps, heating, cooling and refrigeration systems with efficiency and reliability benefits.

The B Series design effectively helps to lower pressure drop by 25%, reduce refrigerant filling volume by 44%, increase water flow rate by 19% and cut the weight by up to 48%, these overcome common impact on water-side pressure drop while maximizing system performance, energy efficiency and reliability.

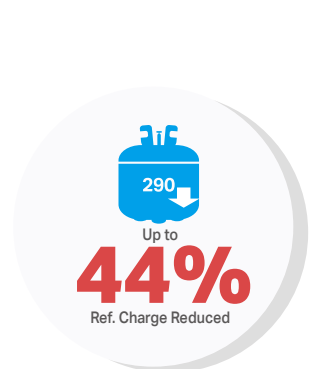
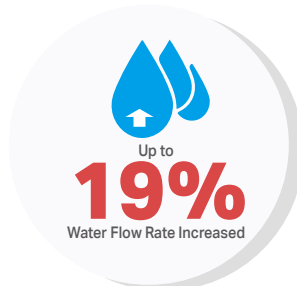
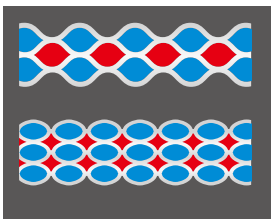


| Brazing Material | Copper | |
|-------------------------------|---------------|------------|
| Model | B050, B110 | B051, B111 |
| | (A1,A2/B1,B2) | |
| Max. Working Pressure (psi) | 435/363 | 652.5/435 |
| Max. Working Temperature (°F) | 392°F | |

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft²) | Total Heat Transfer Area (ft²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|---------------------------------|--------------------------------|--------------------------------|----------------------------|
| B050 | 12.05 | 9.84 | 4.17 | 1.97 | 26.67+4.57*N | 3.05+0.226*N | 0.274 | (N-2)+0.274 | (A1-A2):0.008 (B1-B2):0.012 | (N-1)*0.008 (N-1)*0.012 |
| B110 | 20.71 | 18.50 | 4.69 | 2.48 | 26.67+4.70*N | 5.77+0.043*N | 0.602 | (N-2)+0.602 | (A1-A2):0.018 (B1-B2):0.026 | (N-1)*0.018 (N-1)*0.026 |

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft²) | Total Heat Transfer Area (ft²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|---------------------------------|--------------------------------|--------------------------------|----------------------------|
| B051 | 12.05 | 9.84 | 4.17 | 1.97 | 31.75+4.57*N | 5.44+0.226*N | 0.274 | (N-2)+0.274 | (A1-A2):0.008 (B1-B2):0.012 | (N-1)*0.008 (N-1)*0.012 |
| B111 | 20.71 | 18.50 | 4.69 | 2.48 | 31.75+4.70*N | 10.49+0.043*N | 0.602 | (N-2)+0.602 | (A1-A2):0.018 (B1-B2):0.026 | (N-1)*0.018 (N-1)*0.026 |

N: number of plates

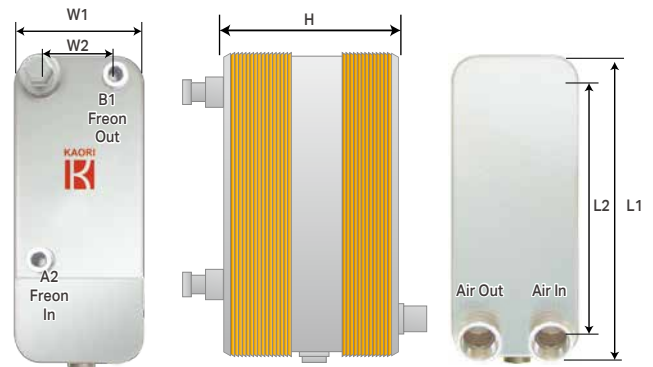


A Series-Air Dryer Brazed Plate Heat Exchanger



A series is KAORI's innovative patent design for refrigerated air dryer. Combining pre-cooler, evaporator and separator. A series provides compact size and high thermal transfer performance for your system. The patented design separator can perfectly dehumidify compressed air and eliminate the need for demister to avoid clogging problem.

| Brazing Material | Copper | |
|-------------------------------|------------------|-------------|
| Model | A030, A070, A140 | A210 |
| | (A2,B1/C2,D2) | |
| Max. Working Pressure (psi) | 435.1/ 232.1 | 435.1/145.0 |
| Max. Working Temperature (°F) | 392°F | |



| Model | Air Flow Rate @101.5psi | | | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | Weight (pounds) | H Thickness (inch) | Air Connection (inch) |
|------------|-------------------------|---------------------|--------|-----------|-----------|-----------|-----------|-----------------|--------------------|-----------------------|
| | Nm ³ /min | Nm ³ /hr | sCFM | | | | | | | |
| A030-14-8 | 0.58 | 34.8 | 20.57 | 7.56 | 6.06 | 3.07 | 1.57 | 6.48 | 3.82 | 3/4" |
| A030-20-10 | 0.83 | 49.8 | 29.43 | 7.56 | 6.06 | 3.07 | 1.57 | 7.21 | 4.49 | 3/4" |
| A030-22-12 | 1.00 | 60.0 | 35.46 | 7.56 | 6.06 | 3.07 | 1.57 | 7.58 | 4.80 | 3/4" |
| A030-24-16 | 1.33 | 79.8 | 47.16 | 7.56 | 6.06 | 3.07 | 1.57 | 10.08 | 5.31 | 3/4" |
| A030-40-24 | 1.67 | 100.2 | 59.22 | 7.56 | 6.06 | 3.07 | 1.57 | 10.43 | 7.28 | 3/4" |
| A070-20-26 | 2.40 | 144.0 | 85.11 | 11.97 | 9.84 | 4.88 | 2.76 | 24.69 | 6.23 | 1" |
| A070-32-40 | 4.20 | 252.0 | 148.94 | 11.97 | 9.84 | 4.88 | 2.76 | 32.85 | 9.16 | 1-1/4" |
| A070-46-66 | 7.00 | 420.0 | 248.23 | 11.97 | 9.84 | 4.88 | 2.76 | 46.96 | 14.04 | 1-1/2" |
| A140-24-36 | 11.00 | 660.0 | 390.07 | 17.36 | 14.17 | 8.11 | 4.92 | 67.68 | 8.97 | 2" |
| A140-32-44 | 14.00 | 840.0 | 496.45 | 17.36 | 14.17 | 8.11 | 4.92 | 79.81 | 11.21 | 2" |
| A210-40-50 | 22.00 | 1320.0 | 780.14 | 20.75 | 16.93 | 9.65 | 5.83 | 171.08 | 15.53 | 2-1/2" |
| A210-50-64 | 28.00 | 1680.0 | 992.91 | 20.75 | 16.93 | 9.65 | 5.83 | 211.42 | 19.72 | 3" |

E.g. A030-14-8, 14 is the number of plates of the evaporator on air-freon side, 8 is the number of plates of the pre-cooler on air-air side.

* The flow direction might be changed according to different models, please refer to the drawing and user manual for detail.

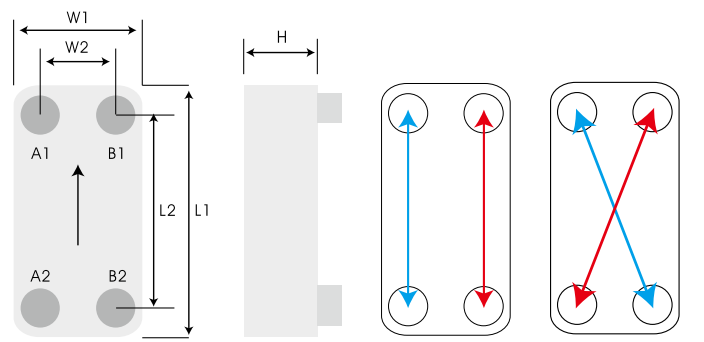
* This table only lists the standard A series products. If there is a selection requirement of special type A series on the right page, please refer to the KAORI A series catalogue.

D Series-Double Wall Brazed Plate Heat Exchanger



To prevent two different kinds of fluid from intermixing caused by internal leakage, KAORI precisely designed D Series solution with the double-stacked plates, eliminating the possibility of cross contamination.

The unique air gap is created between the two plates. Once internal leakage occurs, the 2nd plate becomes a shield to keep fluid stay and flow on the same channel through the air gap. Meanwhile, vent holes outside the plate will seep out fluid as an indication of leakage.



D045/046

| Brazing Material | Copper | |
|-------------------------------|------------------|------------------|
| Model | D030, D045, D070 | D031, D046, D071 |
| | (A1, A2/B1, B2) | |
| Max. Working Pressure (psi) | 435.1/435.1 | 652.7/652.7 |
| Max. Working Temperature (°F) | 392°F | |

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| D030 | 7.95 | 6.14 | 3.62 | 1.81 | 0.315+0.094*N | 0.992+0.229*N | 0.140 | (N-2)*0.140 | 0.007 | (N-1)*0.007 |
| D045* | 14.29 | 12.60 | 3.23 | 1.57 | 0.327+0.080*N | 2.205+0.366*N | 0.258 | (N-2)*0.258 | 0.008 | (N-1)*0.008 |
| D070 | 12.05 | 9.84 | 4.96 | 2.76 | 0.366+0.102*N | 3.373+0.448*N | 0.323 | (N-2)*0.323 | 0.016 | (N-1)*0.016 |

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| D031 | 7.95 | 6.14 | 3.62 | 1.81 | 0.354+0.094*N | 1.565+0.229*N | 0.140 | (N-2)*0.140 | 0.007 | (N-1)*0.007 |
| D046* | 14.29 | 12.60 | 3.23 | 1.57 | 0.327+0.080*N | 2.601+0.366*N | 0.258 | (N-2)*0.258 | 0.008 | (N-1)*0.008 |
| D071 | 12.05 | 9.84 | 4.96 | 2.76 | 0.445+0.102*N | 5.842+0.481*N | 0.323 | (N-2)*0.323 | 0.016 | (N-1)*0.016 |

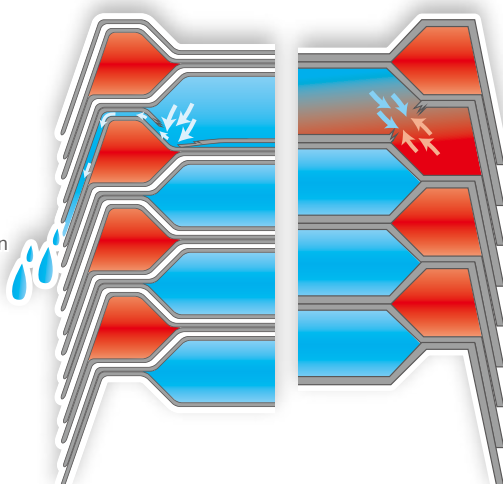
N: number of plates

* D045/ D046: diagonal design.

Double Wall Vs. Regular BPHE

KAORI Double Wall

The cracks on plates doesn't lead to internal leakage between fluids, which can be distinguished from outer appearance.



Regular BPHE

The cracks on plates result in internal leakage between fluids, which can't be distinguished from outer surface

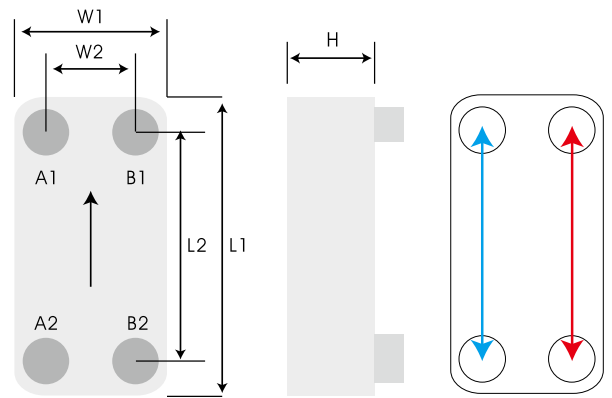
E/F Series-Low Pressure Brazed Plate Heat Exchanger



E/ F series is designed for the specification of small volume water to water application. E series is flat cover plate design and F series is economical design (without flat cover plate); also, multi-pass pattern are available upon different working conditions and requests.

Main application: Residential Gas Boiler, District Heating, Solar Heating System.

| | |
|-------------------------------|---|
| Brazing Material | Copper |
| Model | E010, E015, F025, E030, E040, E050, E060 (A1,A2/B1,B2) |
| Max. Working Pressure (psi) | 290.0/290.0 |
| Max. Working Temperature (°F) | 392°F |



| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| E010 | 5.39 | 4.33 | 2.44 | 1.02 | 0.256+0.067*N | 0.314+0.053*N | 0.069 | (N-2)*0.069 | 0.003 | (N-1)*0.003 |
| E015 | 6.10 | 4.72 | 2.95 | 1.57 | 0.354+0.071*N | 0.463+0.079*N | 0.090 | (N-2)*0.090 | 0.004 | (N-1)*0.004 |
| F025 | 8.11 | 6.77 | 2.87 | 1.57/1.65 | 0.256+0.089*(N-2) | 0.419+0.088*(N-2) | 0.129 | (N-2)*0.129 | 0.007 | (N-1)*0.007 |
| E030 | 7.68 | 6.06 | 3.15 | 1.57 | 0.276+0.089*N | 0.639+0.104*N | 0.126 | (N-2)*0.126 | 0.007 | (N-1)*0.007 |
| E040 | 12.24 | 10.94 | 2.87 | 1.57 | 0.354+0.091*N | 1.367+0.154*N | 0.210 | (N-2)*0.210 | 0.011 | (N-1)*0.011 |
| E050 | 12.05 | 9.84 | 4.17 | 1.97 | 0.354+0.094*N | 2.535+0.256*N | 0.274 | (N-2)*0.274 | 0.015 | (N-1)*0.015 |
| E060 | 18.35 | 17.01 | 2.91 | 1.57 | 0.354+0.091*N | 1.455+0.220*N | 0.325 | (N-2)*0.325 | 0.017 | (N-1)*0.017 |

N: number of plates

Model Selection Chart

| RT | kW | BTU/H | Hot Water Temp. | Cold Water Temp. | E015 | F025 | E030 | E040 | E060 |
|-----|---------|--------|-----------------|------------------|---------|---------|---------|---------|---------|
| 1 | 3.5160 | 12000 | 158°F --> 122°F | 50°F --> 140°F | E015x14 | F025x12 | E030x12 | | |
| 2 | 7.0320 | 24000 | 158°F --> 122°F | 50°F --> 140°F | E015x18 | F025x16 | E030x16 | | |
| 3 | 10.5480 | 36000 | 158°F --> 122°F | 50°F --> 140°F | E015x26 | F025x22 | E030x22 | | |
| 4 | 14.0640 | 48000 | 158°F --> 122°F | 50°F --> 140°F | E015x30 | F025x26 | E030x26 | | |
| 5 | 17.5800 | 60000 | 158°F --> 122°F | 50°F --> 140°F | | F025x32 | E030x32 | E040x10 | |
| 7.5 | 26.3700 | 90000 | 158°F --> 122°F | 50°F --> 140°F | | F025x44 | E030x44 | E040x14 | E060x10 |
| 10 | 35.1600 | 120000 | 158°F --> 122°F | 50°F --> 140°F | | F025x56 | E030x56 | E040x18 | E060x12 |
| 15 | 52.7400 | 180000 | 158°F --> 122°F | 50°F --> 140°F | | | | E040x26 | E060x18 |
| 20 | 70.3200 | 240000 | 158°F --> 122°F | 50°F --> 140°F | | | | E040x36 | E060x24 |
| 25 | 87.9000 | 300000 | 158°F --> 122°F | 50°F --> 140°F | | | | E040x50 | E060x30 |
| 30 | 105.480 | 360000 | 158°F --> 122°F | 50°F --> 140°F | | | | | E060x40 |

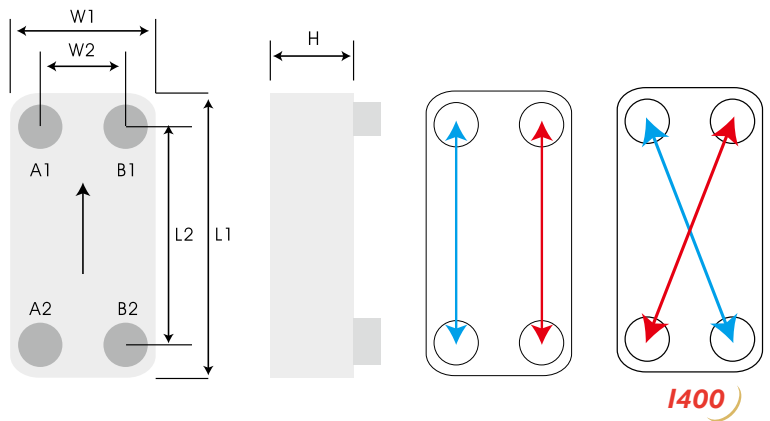
The above information is for reference only; the data will be different under various working conditions and specifications.

Series-Impact Resistant Brazed Plate Heat Exchanger



I series is suitable for those applications with the possibilities of encountering thermal shocks or pressure shocks. The optimal heat transfer efficiency and pressure resistance that can withstand tough operation conditions like Hydraulic System, Injection Molding System and Boiler System.

| Brazing Material | Copper | |
|-------------------------------|--|-------------|
| Model | I030, I050, I070, I095, I105, I200, I205, I400 | I210 |
| | (A1,A2/B1,B2) | |
| Max. Working Pressure (psi) | 435.1/435.1 | 232.1/232.1 |
| Max. Working Temperature (°F) | 392°F | |



| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Total Heat Transfer Area (ft ²) | Volume/ Channel (gal) | Total Volume (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|---|-----------------------|--------------------|
| I030 | 7.64 | 6.06 | 3.15 | 1.57 | 0.394+0.087*N | 1.301+0.104*N | 0.126 | (N-6)*0.126 | 0.007 | (N-5)*0.007 |
| I050 | 12.05 | 9.84 | 4.17 | 1.97 | 0.394+0.094*N | 2.623+0.256*N | 0.274 | (N-6)*0.274 | 0.015 | (N-5)*0.015 |
| I070 | 11.97 | 9.84 | 4.88 | 2.76 | 0.394+0.094*N | 3.219+0.289*N | 0.323 | (N-6)*0.323 | 0.017 | (N-5)*0.017 |
| I095 | 20.55 | 18.35 | 4.17 | 1.97 | 0.433+0.094*N | 6.239+0.450*N | 0.511 | (N-6)*0.511 | 0.025 | (N-5)*0.025 |
| I105 | 19.84 | 17.48 | 4.88 | 2.52 | 0.433+0.094*N | 7.584+0.522*N | 0.574 | (N-6)*0.574 | 0.028 | (N-5)*0.028 |
| I200 | 24.13 | 20.43 | 7.32 | 3.62 | 0.551+0.094*N | 15.190+0.891*N | 1.017 | (N-6)*1.017 | 0.054 | (N-5)*0.054 |
| I205 | 20.79 | 17.95 | 9.69 | 6.85 | 0.551+0.094*N | 16.557+0.966*N | 1.183 | (N-6)*1.183 | 0.061 | (N-5)*0.061 |
| I210 | 20.75 | 16.93 | 9.65 | 5.83 | 0.453+0.112*N | 14.528+1.080*N | 1.115 | (N-6)*1.115 | 0.076 | (N-5)*0.076 |
| I400* | 29.57 | 25.59 | 12.64 | 8.66 | 0.551+0.094*N | 68.564+1.962*N | 2.232 | (N-6)*2.232 | 0.112 | (N-5)*0.112 |

N: number of plates
 * I400: diagonal design.

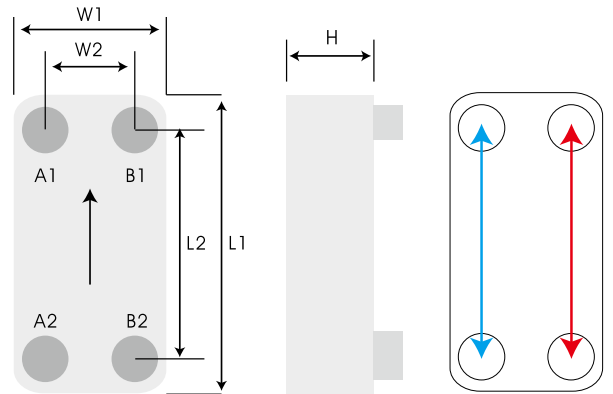
Q Series-Oil Cooler Brazed Plate Heat Exchanger



The Q Series is excellent for both shell & tube replacement and hydraulic applications. Q series is set to increase cooling performance, significantly reduce downtime and increase production efficiency. Q series can save time and money for the amount of cooling water required for heat transfer which will result in lower operating costs and maintenance.

Application:

Extruder, Injection Molding Machine, Gearbox, High Frequency Equipment, Press Machine, Lathe, Milling Machine And Punch.



| Brazing Material | Copper |
|-------------------------------|-----------------------------------|
| Model | Q035, Q055, Q085 (A1,A2/B1,B2) |
| Max. Working Pressure (psi) | 435.1/435.1 |
| Max. Working Temperature (°F) | 392°F |

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Volume/ Channel (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|-----------------------|
| Q035 | 7.32 | 5.63 | 4.96 | 3.27 | 0.354+0.094*N | 2.249+0.185*N | 0.189 | 0.011 |
| Q055 | 10.08 | 7.48 | 6.14 | 3.54 | 0.472+0.112*N | 5.115+0.342*N | 0.307 | 0.022 |
| Q085 | 11.91 | 9.45 | 7.46 | 5.00 | 0.433+0.094*N | 5.776+0.439*N | 0.482 | 0.028 |

N: number of plates

Model Selection Chart

| Fuel Tank Capacity (gal) | Applicable Models |
|--------------------------|-------------------|
| 15.9 | Q035 x 20 |
| 26.4 | Q035 x 30 |
| 39.6 | Q085 x 22 |
| 66.0 | Q085 x 42 |
| 92.5 | Q085 x 66 |

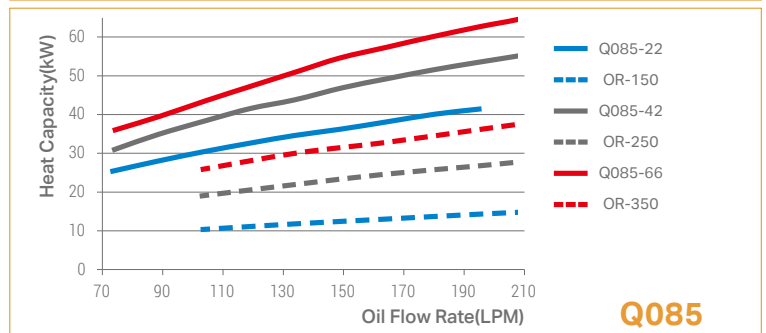
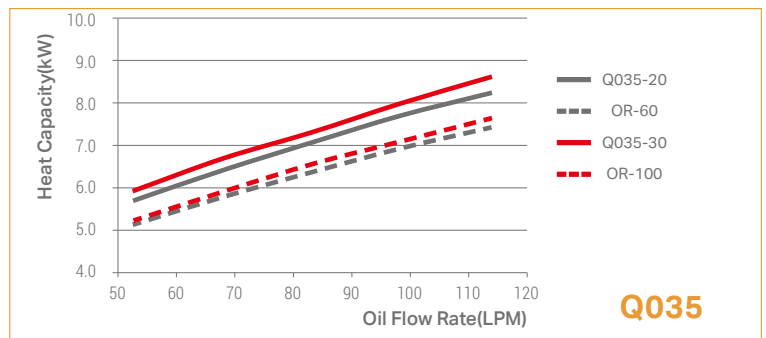
Applicable fluids

Water \ E.G. \ P.G. \ ATF \ SAE10~SAE70 \ VG22~VG68 \ R134a \ R404A \ R407C



Stud Bolts

Heat Transfer Performance Comparison Q Series Vs. Shell & Tube



H/T Series-High Temperature Brazed Plate Heat Exchanger

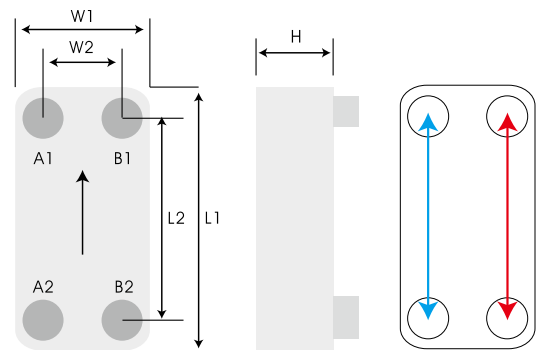


H series uses heat resistant materials to construct BHPE for high temperature applications, maximum working temperature can go up to 1652°F. In green energy application such as fuel cells is using such high temperature BPHE for its heating and cooling.

T series processes lower pressure drop than H series, it is more suitable for low pressure gas.

Main application: Fuel cell, Cogeneration, combined heat and power, waste heat recovery.

| Brazing Material | Nickel | | | | | |
|-----------------------------|--|-------------|--|-----------|------------------------------------|-------------|
| Model | H030, H050, H095, H205, T030, T035, T050, T085, T200, T210 | | H031, H051, H096, H206, T031, T051, T086, T201, T211 | | T032, T037, T052, T087, T202, T212 | |
| | (A1, A2/B1, B2) | | | | | |
| Max. Working Pressure (psi) | 145.0/145.0 | 101.5/101.5 | 43.5/43.5 | 29.0/29.0 | 145.0/145.0 | 145.0/145.0 |
| Min. Test Pressure (psi) | 217.6/217.6 | | | | | |



| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Volume/ Channel (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|-----------------------|
| H030 | 7.64 | 6.06 | 3.15 | 1.57 | 0.354+0.091*N | 1.609+0.150*N | 0.126 | 0.007 |
| H031 | 7.64 | 6.06 | 3.15 | 1.57 | 0.354+0.091*N | 1.521+0.141*N | 0.126 | 0.007 |
| H050 | 12.05 | 9.84 | 4.17 | 1.97 | 0.394+0.094*N | 5.247+0.302*N | 0.274 | 0.015 |
| H051 | 12.05 | 9.84 | 4.17 | 1.97 | 0.394+0.094*N | 4.960+0.284*N | 0.274 | 0.015 |
| H095 | 20.55 | 18.35 | 4.17 | 1.97 | 0.394+0.094*N | 7.319+0.476*N | 0.511 | 0.025 |
| H096 | 20.55 | 18.35 | 4.17 | 1.97 | 0.394+0.094*N | 6.945+0.450*N | 0.511 | 0.025 |
| H205 | 20.79 | 17.95 | 9.69 | 6.85 | 0.453+0.094*N | 19.445+1.204*N | 1.183 | 0.061 |
| H206 | 20.79 | 17.95 | 9.69 | 6.85 | 0.453+0.094*N | 19.158+1.248*N | 1.183 | 0.061 |

| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Volume/ Channel (gal) |
|------------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|-----------------------|
| T030 | 7.64 | 6.06 | 3.15 | 1.57 | 0.354+0.091*N | 1.609+0.150*N | 0.126 | 0.007 |
| T031/ T032 | 7.64 | 6.06 | 3.15 | 1.57 | 0.354+0.091*N | 1.521+0.141*N | 0.126 | 0.007 |
| T035 | 7.32 | 5.63 | 4.96 | 3.27 | 0.354+0.094*N | 2.249+0.196*N | 0.189 | 0.011 |
| T036/ T037 | 7.32 | 5.63 | 4.96 | 3.27 | 0.354+0.094*N | 2.249+0.185*N | 0.189 | 0.011 |
| T050 | 12.05 | 9.84 | 4.17 | 1.97 | 0.394+0.094*N | 5.247+0.302*N | 0.274 | 0.015 |
| T051/ T052 | 12.05 | 9.84 | 4.17 | 1.97 | 0.394+0.094*N | 4.960+0.284*N | 0.274 | 0.015 |
| T085 | 11.91 | 9.45 | 7.46 | 3.03 | 0.433+0.094*N | 5.776+0.463*N | 0.482 | 0.028 |
| T086/ T087 | 11.91 | 9.45 | 7.46 | 3.03 | 0.433+0.094*N | 5.776+0.439*N | 0.482 | 0.028 |
| T200 | 24.13 | 20.43 | 7.32 | 3.62 | 0.551+0.094*N | 15.190+0.941*N | 1.017 | 0.054 |
| T201/ T202 | 24.13 | 20.43 | 7.32 | 3.62 | 0.551+0.094*N | 15.190+0.891*N | 1.017 | 0.054 |
| T210 | 20.75 | 16.93 | 9.65 | 5.83 | 0.453+0.112*N | 15.190+1.085*N | 1.115 | 0.076 |
| T211/ T212 | 20.75 | 16.93 | 9.65 | 5.83 | 0.453+0.112*N | 15.190+1.025*N | 1.115 | 0.076 |

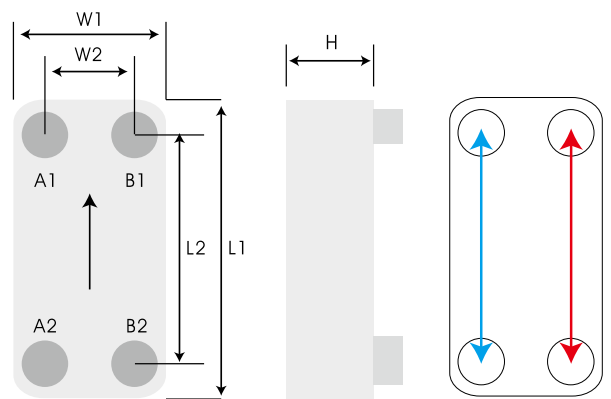
M Series-Corrosion Resistant Brazed Plate Heat Exchanger



M series is specially designed for higher chlorine content applications.

M series is made of corrosion resistant stainless steel (equivalent to SMO254).

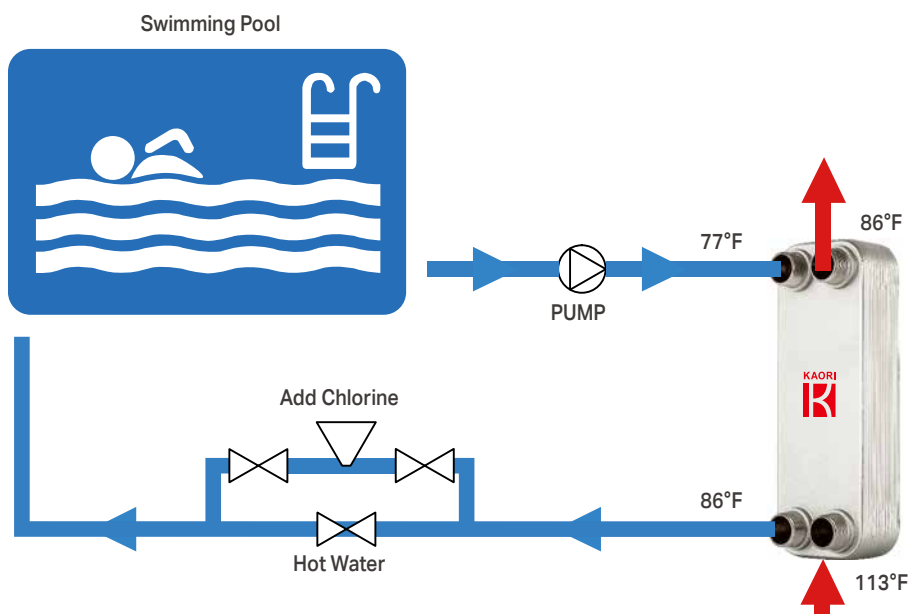
| Brazing Material | Nickel |
|-------------------------------|---------------------------------------|
| Model | M050, M095, M205 |
| Plate Material | Equivalent to SMO254 (A1,A2/B1,B2) |
| Max. Working Pressure (psi) | 145.0/145.0 |
| Max. Working Temperature (°F) | 392°F |



| Model | L1 (inch) | L2 (inch) | W1 (inch) | W2 (inch) | H Thickness (inch) | Weight*(lb) (Without Connection) | Heat Transfer Area/ plate (ft ²) | Volume/ Channel (gal) |
|-------|-----------|-----------|-----------|-----------|--------------------|----------------------------------|--|-----------------------|
| M050 | 12.05 | 9.84 | 4.17 | 1.97 | 0.394+0.094*N | 2.293+0.300*N | 0.274 | 0.015 |
| M095 | 20.55 | 18.35 | 4.17 | 1.97 | 0.394+0.094*N | 5.820+0.529*N | 0.511 | 0.025 |
| M205 | 20.79 | 17.95 | 9.69 | 6.85 | 0.453+0.094*N | 13.823+1.199*N | 1.183 | 0.061 |

N: number of plates

Swimming Pool Heating



Standard Connections

| Model | Thread Connections | | | | | | | | | | | Height (inch) |
|-------------|--------------------|------|------|----|--------|--------|----|--------|----|--------|----|----------------|
| | PT/ NPT/ GB | | | | | | | | | | | |
| | 3/8" | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" | 2" | 2 1/2" | 3" | 3 1/2" | 4" | |
| 010 | ○ | ● | | | | | | | | | | 0.51/0.59/0.79 |
| 015/025 | ○ | ○ | ● | | | | | | | | | 0.51/0.59/0.79 |
| 020/021/022 | ○ | ○ | ○ | | | | | | | | | 0.79 |
| 030/031/032 | ○ | ○ | ○ | | | | | | | | | 0.79 |
| 035/036/037 | | | ○ | ○ | | | | | | | | 0.79 |
| 040/041/042 | | ○ | ○ | | | | | | | | | 0.79 |
| 045/046 | | ○ | ● | | | | | | | | | 0.79 |
| 050/051/052 | ○ | ○ | ○ | ○ | | | | | | | | 1.06 |
| 060 | | ○ | ○ | | | | | | | | | 0.79 |
| 070/071 | ○ | ○ | ○ | ○ | ○ | ● | | | | | | 0.79 |
| 085/086/087 | | | ○ | ○ | ○ | ○ | | | | | | 1.06 |
| 095/096/097 | ○ | ○ | ○ | ○ | ● | | | | | | | 1.06 |
| 105 | ○ | ○ | ○ | ○ | ○ | ● | | | | | | 1.06 |
| 110/111 | ○ | ○ | ○ | ○ | ● | | | | | | | 1.06 |
| 200/201/202 | | | | ○ | ○ | ○ | ○ | ○ | | | | 1.06/2.13 |
| 205/206 | | | | ○ | ○ | ○★ | ○★ | | | | | 1.06/2.13 |
| 210/211/212 | | | | ○ | ○ | ○★ | ○★ | ○ | ● | | | 1.06/1.65 |
| 215/216 | | | | ○ | ○ | ○ | ○ | ● | | | | 1.06/2.13 |
| 400/401 | | | | | | ○ | ○★ | ○★ | ○★ | | | 2.13/3.19 |
| 415/416 | | | | | | ○ | ○★ | ○★ | ●★ | | | 2.13/3.19 |
| 600/601 | | | | | | ○ | ○★ | ○★ | ○★ | ○★ | ○★ | 2.13/3.19 |

○ Male/Female Thread ○ Female Thread ● Male Thread ★ Flange

| Model | Solder Connections | | | | | | | | | | | | | | | Height (inch) |
|-------------|--------------------|------|------|------|-------|-------|-------|------|--------|--------|--------|--------|--------|--------|--------|----------------|
| | inch | 1/4" | 3/8" | 1/2" | 5/8" | 3/4" | 7/8" | 1" | 1 1/8" | 1 3/8" | 1 5/8" | 2 1/8" | 2 1/2" | 2 5/8" | 3 1/8" | |
| | mm | 6.6 | 9.73 | 12.9 | 16.15 | 19.25 | 22.36 | 25.6 | 28.8 | 35.25 | 41.5 | 54.3 | 63.5 | 67 | 79.4 | |
| 010 | ▲ | ▲ | | | | | | | | | | | | | | 0.51/0.59/0.79 |
| 015 | ▲ | ▲ | ▲ | | | | | | | | | | | | | 0.51/0.59/0.79 |
| 020/021/022 | ▲ | ▲ | ▲ | ▲ | | | | | | | | | | | | 0.79 |
| 025 | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | | | | | | 0.79 |
| 030/031/032 | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | | | | | | 0.79 |
| 040/041/042 | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | | | | | | 0.79 |
| 045/046 | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | | | | | | 0.79 |
| 050/051/052 | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | | | | 1.06 |
| 060 | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | | | | | | 0.79 |
| 070/071 | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | | 1.06 |
| 095/096/097 | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | | | | 1.06 |
| 105 | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | | 1.06 |
| 110/111 | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | | | | 1.06 |
| 200/201/202 | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | 1.06 |
| 205/206 | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | | | 1.06/2.13 |
| 210/211/212 | | | | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | 1.06/1.65 |
| 215/216 | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | 1.06/2.13 |
| 400/401 | | | | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | 2.13/3.19 |
| 415/416 | | | | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | | 2.13/3.19 |
| 600/601 | | | | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | 2.13/3.19 |

*The above table is for reference only. Please contact KAORI representative for more information.

Various connection designs fulfill different specifications

Connection types include: soldering (sweat), female/ male threaded, flange, combo, hydraulic, victaulic, quick, temperature control, opposite side...etc.

KAORI offers customize connections to fit your specific demand.








Welding Procedure

Cleaning and degreasing the surface of copper pipes and BPHE connection before welding. To avoid oxidation in the copper pipes and BPHE, protect the inside with N2-gas. Place the BPHE on a flat surface and wrap a wet rag around the connection to protect the BPHE from excessive heating. Use a 40~45% silver alloy soldering rod to weld the copper pipe into the connection at a maximum temperature of 1472°F. After soldering, clean and dry the connection and BPHE.

Installation

1 Mounting

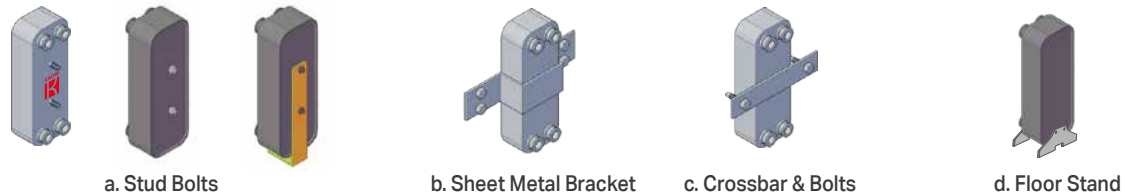
The BPHE should be mounted as below:

| Setting | Vertical  | Horizontal  | Lying back  | Slanted  | Slanted  |
|---|--|--|---|---|---|
| flow direction of product Counter flow  | Evaporator: ○ Condenser: ○ Cooler: ○ | Evaporator: ✕ Condenser: ✕ Cooler: ○ | Evaporator: ✕ Condenser: ✕ Cooler: ○ | Evaporator: ✕ Condenser: ✕ Cooler: ○ | Evaporator: ✕ Condenser: ✕ Cooler: ○ |
| Diagonal flow  | Evaporator: ○ Condenser: ○ Cooler: ○ | Evaporator: ○* Condenser: ○* Cooler: ○ | Evaporator: ✕ Condenser: ✕ Cooler: ○ | Evaporator: ✕ Condenser: ✕ Cooler: ○ | Evaporator: ✕ Condenser: ✕ Cooler: ○ |

* Performance may be affected. For further information, please contact KAORI representative.

Fig. 1

* Vibration dampener or other absorbing devices are also recommended.



* The installation fixture of the diagram is for reference only. The product itself does not include the above accessories. If you have related requirements, please contact KAORI representative.

Fig. 2

2 Softening Treatment of Cooling Tower Water

Softening treatment and regular maintenance for cooling tower can reduce the scale clogging problem. While using chemical additives to do the cleaning, the concentration of the additive should be carefully controlled. Avoid using corrosive additives. If stainless steel and copper react to the corrosive content, it will reduce the pressure resistance on the brazing joints and possibly lead to internal or external leakages. To avoid the problem mentioned above, please refer to the below data for proper chemical additives:

PH: 6~8 $SO_4^{-2} < 30\text{mg/L}$
 Cl⁻ < 50ppm (<212°F) $NH_4^+ < 0.1\text{mg/L}$

3 Prevention of Water Hammer

Water hammer occurs when the pipes carry incompressible fluids and the flow suddenly changes its velocity. The most common case occurs when one rapidly closes the solenoid valve and thus, causes instant pressure in the pipes. This will damage the valve, heat exchanger and other equipment. In order to avoid the problem mentioned above, installation of pressure suction pipe, water hammer arrestor, air chamber...etc is highly recommended.

4 Cleaning

While fouling in the BPHE, back flushing is always possible to remove most of the soft debris that is blocking the inside. Weak acids with concentration less than 5%; for example: citric acid, oxalic acid add in a tank. Circulate the cleaning solution. Before restarting the system, flush the BPHE with large amounts of fresh water to purge any remaining acid solution. If the acidity is too high, the copper and stainless steel inside the BPHE may be etched or corroded.

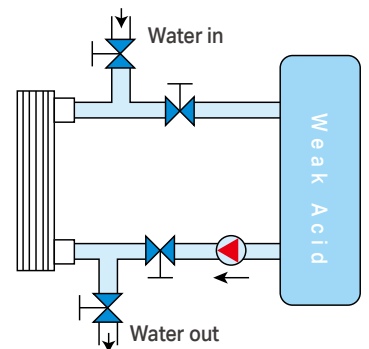


Fig. 3 Cleaning

KAORI



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KAORI reserves the right to make changes without prior notice.

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