



AURORA[®]

1081BP SERIES

BRAZED PLATE HEAT EXCHANGERS

INSTRUCTION, INSTALLATION, MAINTENANCE AND REPAIR MANUAL

NOTE! To the installer: Please make sure you provide this manual to the owner of the equipment or to the responsible party who maintains the system.

IMPORTANT NOTE TO INSTALLER:

This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.

CALIFORNIA PROPOSITION 65 WARNING:

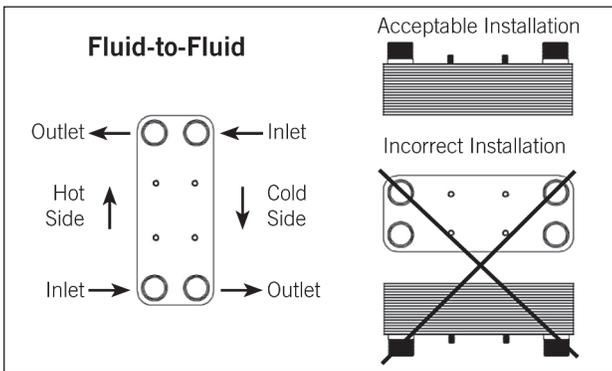
▲ WARNING This product and related accessories contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

GENERAL INSTALLATION NOTES:

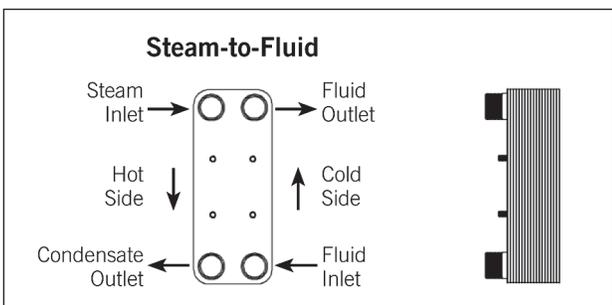
With extensive experience in hydronic heat exchanger design, Aurora recommends a few key application tips when applying "Brazed Plate Heat Exchangers" to your systems.

INSTALLATION. Fluid applications – Heat exchanger may be installed in either a vertical or horizontal position.

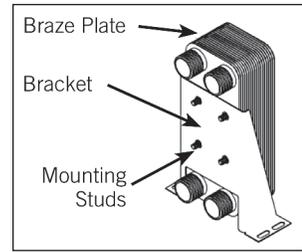
If the application requires the heat exchanger to be mounted on its back, it is possible in this orientation for the heat exchanger to collect sediment and to be rendered useless in the system. Warranty claims due to sediment deposits will not be covered under warranty.



Steam applications – Unit should be installed in a vertical position to ensure the condensate drains from the heat exchanger.

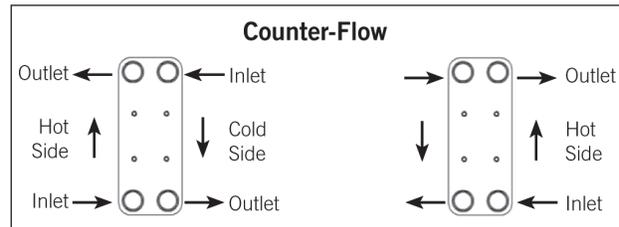


MOUNTING. Small units may be mounted by the base of the unit or steel clamps. Larger units should use a mounting bracket (see illustration); if there is a risk of vibration, use an antivibration device. Do not overtighten mounting nuts. Do not braze or weld mounting bracket to heat exchanger.



SAFETY. Each side of the heat exchanger should be properly protected from overpressurization through the use of an appropriate safety relief device.

PIPING INSTALLATION. Heat exchanger should be piped in counterflow.



Thread connections – Use Teflon® tape or other sealant on male threaded part of connection to prevent leakage. Always use two wrenches when installing piping to heat exchanger connections to prevent over-torque stress and damage when tightening.

Welding – Should be done only to a supplied butt weld or socket weld connector. Prepare the edge of the piping with an appropriate bevel. DO NOT OVERHEAT; purge unit with nitrogen.

Water strainer – A water strainer should be installed in the water inlet circuit to protect the heat exchanger from partial or complete blockage with a 16 – 20 mesh minimum; 20 – 40 mesh is a better choice.

WATER QUALITY. The water media pH value should be maintained at 7.4 (not less than 7.0 and no higher than 8.0) for proper heat exchanger life expectancy. For pH values outside this range, the Aurora **APSMO series** can tolerate a pH value as low as 2.0.

Highly chlorinated water (pools and spas), ground water with high sulfur content or sulfuric acid, and low pH, should use the Aurora **APSMO series**. The standard series of heat exchangers, copper braze, will experience gradual copper erosion and premature failure of the heat exchanger.

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GLYCOLS. Ethylene or propylene based glycols – May be used with brazed plate heat exchangers. The glycol should be tested annually, or more often if required, to be sure the fluid still retains the desired properties and protection. No permanent connection should be made between a system containing ethylene glycol and a drinking water supply.

Automotive glycols – Not recommended; usage may result in reduced thermal performance of the heat exchanger.

FREEZE PROTECTION. It is not recommended to cool water below 33°F (0.6°C) due to the tolerances of the measuring equipment. For freeze protection it is recommended to use thermostats and/or temperature controls in the piping.

Low pressure Cutout – In water chiller applications, in addition to the flow switch, the low pressure cutout on the refrigerant side is the most important freeze protection control. To prevent freeze damage and to protect the heat exchanger and compressor, the low pressure cutout should be set no lower than 28°F (-2°C), based on evaporator refrigerant pressure at this temperature. If part-load or transient loads cause the chiller to cycle off, use a resetting low pressure control with anti-cycling timer or install a hot gas bypass control to maintain the appropriate suction pressure at low loads.

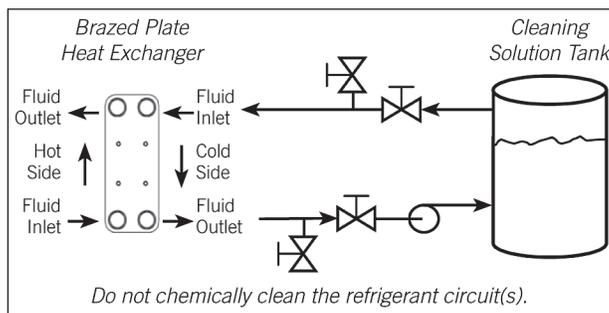
NOTE: Use of a leaving chilled water sensor will not provide adequate freeze protection.

SWIMMING POOLS AND SPAS. The use of chlorinating devices requires that all chemical feeds **MUST** be downstream from the heat exchanger, and a check valve should be installed to prevent backflow of chemicals into the heat exchanger whenever the pump is not in operation.

CLEANING. In some applications the heat exchanger may be subjected to severe fluid conditions, including high temperature and/or hard water, causing accelerated scaling and corrosion rates and reducing the performance of the heat exchanger.

Because of these factors, it is important to establish regular cleaning schedules. Chemical cleaning is a very simple and effective process for removal of fatty and calcium deposits and other forms of scaling from brazed plate heat exchangers. Proper maintenance schedules will result in continued excellent performance and extended life.

Cleaning solutions, such as a commercially available descaler, can be obtained from your local wholesaler. Make sure the cleaning solution is applicable for stainless steel and copper or nickel, depending on the model, and that the manufacturer's directions are followed. A 5% solution of phosphoric acid or oxalic acid may be considered.



Do not heat the cleaning solution when back flushing through the heat exchanger. Flush the heat exchanger with fresh water after cleaning.

WARRANTY

Seller warrants equipment (and its component parts) of its own manufacture against defects in materials and workmanship under normal use and service for one (1) year from the date of installation or start-up, or for eighteen (18) months after the date of shipment, whichever occurs first. Seller does not warrant accessories or components that are not manufactured by Seller; however, to the extent possible, Seller agrees to assign to Buyer its rights under the original manufacturer's warranty, without recourse to Seller. Buyer must give Seller notice in writing of any alleged defect covered by this warranty (together with all identifying details, including the serial number, the type of equipment, and the date of purchase) within thirty (30) days of the discovery of such defect during the warranty period. No claim made more than 30 days after the expiration of the warranty period shall be valid. Guarantees of performance and warranties are based on the use of original equipment manufactured (OEM) replacement parts. Seller assumes no responsibility or liability if alterations, non-authorized design modifications and/or non-OEM replacement parts are incorporated. If requested by Seller, any equipment (or its component parts) must be promptly returned to Seller prior to any attempted repair, or sent to an authorized service station designated by Seller, and Buyer shall prepay all shipping expenses. Seller shall not be liable for any loss or damage to goods in transit, nor will any warranty claim be valid unless the returned goods are received intact and undamaged as a result of shipment. Repaired or replaced material returned to customer will be shipped F.O.B., Seller's factory. Seller will not give Buyer credit for parts or equipment returned to Seller, and will not accept delivery of any such parts or equipment, unless Buyer has obtained Seller's approval in writing. The warranty extends to repaired or replaced parts of Seller's manufacture for ninety (90) days or for the remainder of the original warranty period applicable to the equipment or parts being repaired or replaced, whichever is greater. This warranty applies to the repaired or replaced part and is not extended to the product or any other component of the product being repaired. Repair parts of its own manufacture sold after the original warranty period are warranted for a period of one (1) year from shipment against defects in materials and workmanship under normal use and service. This warranty applies to the replacement part only and is not extended to the product or any other component of the product being repaired. Seller may substitute new equipment or improve part(s) of any equipment judged defective without further liability. All repairs or services performed by Seller, which are not covered by this warranty, will be charged in accordance with Seller's standard prices then in effect.

THIS WARRANTY IS THE SOLE WARRANTY OF SELLER AND SELLER HEREBY EXPRESSLY DISCLAIMS AND BUYER WAIVES ALL OTHER WARRANTIES EXPRESSED, IMPLIED IN LAW OR IMPLIED IN FACT, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Seller's sole obligation under this warranty shall be, at its option, to repair or replace any equipment (or its component parts) which has a defect covered by this warranty, or to refund the purchase price of such equipment or part. Under the terms of this warranty, Seller shall not be liable for (a) consequential, collateral, special or liquidated losses or damages; (b) equipment conditions caused by normal wear and tear, abnormal conditions of use, accident, neglect, or misuse of said equipment; (c) the expense of, and loss or damage caused by, repairs or alterations made by anyone other than the Seller; (d) damage caused by abrasive materials, chemicals, scale deposits, corrosion, lightning, improper voltage, mishandling, or other similar conditions; (e) any loss, damage, or expense relating to or resulting from installation, removal or reinstallation of equipment; (f) any labor costs or charges incurred in repairing or replacing defective equipment or parts, including the cost of reinstalling parts that are repaired or replaced by Seller; (g) any expense of shipment of equipment or repaired or replacement parts; or (h) any other loss, damage or expense of any nature.

The above warranty shall not apply to any equipment which may be separately covered by any alternate or special warranties.

PERFORMANCE: In the absence of Certified Pump Performance Tests, equipment performance is not warranted or guaranteed. Performance curves and other information submitted to Buyer are approximate and no warranty or guarantee shall be deemed to arise as a result of such submittal. All testing shall be done in accordance with Seller's standard policy under Hydraulic Institute procedures.

LIABILITY LIMITATIONS: Under no circumstances shall the Seller have any liability under the Order or otherwise for liquidated damages or for collateral, consequential or special damages or for loss of profits, or for actual losses or for loss of production or progress of construction, regardless of the cause of such damages or losses. In any event, Seller's aggregate total liability under the Order or otherwise shall not exceed the contract price.

ACTS OF GOD: Seller shall in no event be liable for delays in delivery of the equipment or other failures to perform caused by fires, acts of God, strikes, labor difficulties, acts of governmental or military authorities, delays in transportation or procuring materials, or causes of any kind beyond Seller's control.

COMPLIANCE WITH LAW: Seller agrees to comply with all United States laws and regulations applicable to the manufacturing of the subject equipment. Such compliance shall include: The Fair Labor Standards Acts of 1938, as amended; Equal Employment Opportunity clauses of Executive Order 11246, as amended; Occupational Safety and Health Act of 1970 and the standards promulgated thereunder, if applicable. Since compliance with the various Federal, State, and Local laws and regulations concerning occupational health and safety, pollution or local codes are affected by the use, installation and operation of the equipment and other matters over which Seller has no control, Seller assumes no responsibility for compliance with those laws and regulations, whether by way of indemnity, warranty, or otherwise. It is incumbent upon the Buyer to specify equipment which complies with local codes and ordinances.



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