# Stainless Steel Heat Exchangers VS Aluminum Heat Exchangers


In the world of high-efficiency condensing boilers, a major point of discussion is the choice of stainless steel or aluminum heat exchangers. Though both materials boast some advantages, HTP has opted to use only high-quality stainless steel for the heat exchangers in our popular Munchkin, ModCon and Elite boilers. Here's why.

Stainless steel resists corrosion in a wide range of pH levels, while aluminum will corrode if the proper fluids are not used to produce and maintain a narrow pH range. Aluminum heat exchangers require the use of special manufacturer-recommended heat transfer fluids and inhibitors when starting up and maintaining the system. If the proper fluids are not used, there is a risk of damage to the heat exchanger, and manufacturers of aluminum heat exchangers may not honor their warranties if the proper fluids have not been used. Stainless steel heat exchangers, on the other hand, do not require the use of special fluids and are compatible with plain clean water and commonly available propylene glycol.

Aluminum heat exchangers are also much more likely to suffer damage if not maintained at regular intervals.

Annual maintenance is required both to monitor the fluids and to clean the heat exchanger to remove aluminum oxides that can build up and clog the condensate line. If not properly maintained, the glycol solution in aluminum heat exchangers will degrade, corroding the aluminum and creating "grey goo" in the condensate trap. Stainless steel heat exchangers are much cleaner internally, with none of the grey goo produced by aluminum. Annual maintenance is recommended for stainless steel heat exchangers, too, but due to the strength and durability of stainless steel, you do not run the same risks of damage or failure if regular maintenance does not occur on schedule.

Depending on your heating system design, you may wish, or need, to run your boiler at a high flow rate. Aluminum can erode at high flow rates, while stainless steel heat exchangers operate very effectively at high flow rates.

Stainless steel heat exchangers are more expensive than aluminum, which is lightweight and has high thermal conductivity, but due to the longevity and corrosion resistance of stainless steel, they are likely to be a much better value in the long run. Aluminum will rust, corrode, warp, or break down long before stainless steel, so investing in a boiler with a quality stainless steel heat exchanger will increase the useful life of your boiler.

HTP's full boiler line uses stainless steel heat exchangers to provide our customers with the highest quality, longest lasting heating appliances available on the market.