

T. H. Industrial Solutions

HOW LONG DO HEAT EXCHANGER PLATES LAST?

The life of a heat exchanger plate varies greatly, typically lasting **10 to 20+ years** for plate-and-frame types with proper maintenance, but potentially only **8-12 years for brazed units**, while industrial units in harsh conditions might last only **4 years**, all depending heavily on operating conditions, fluid aggressiveness (corrosion), cleanliness, and regular servicing like gasket replacement.

Factors Influencing Plate Life:

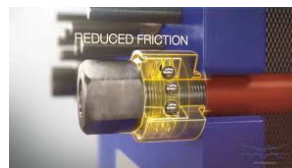
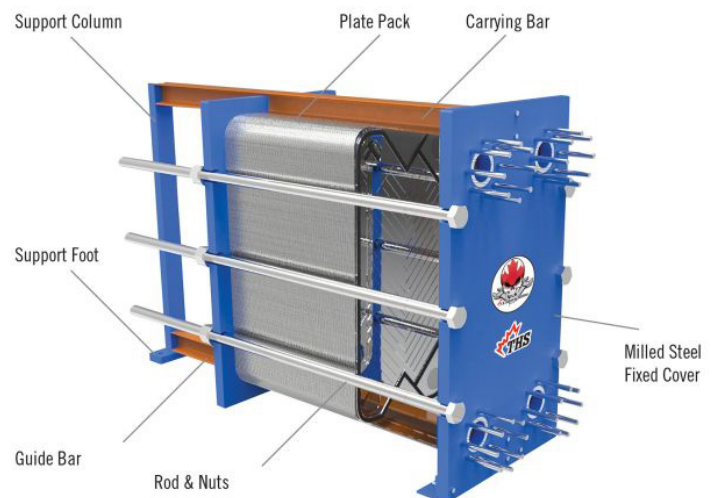
- **Material Selection:** Stainless steel grades (like 316L) and alloys (Titanium) resist corrosion better than standard 304 in aggressive fluids, extending life.
- **Operating Conditions:** High temperatures, pressures, and aggressive fluids (acids, abrasive slurries) accelerate wear and corrosion.
- **Fouling/Scaling:** Buildup of deposits reduces efficiency and increases pressure, forcing pumps to work harder, leading to potential damage.
- **Maintenance:** Regular cleaning (yearly or bi-yearly) and gasket replacement (every 3-5 years for gasketed units) are crucial.
- **Application:** A simple HVAC unit lasts longer than one in a demanding chemical process or polishing slurry application.

Typical Lifespans by Type:

- **Gasketed Plate-and-Frame (PHEs):** Often 10-20+ years, with gaskets replaced every few years.
- **Brazed Plate Heat Exchangers (BPHEs):** Generally 8-12 years, but corrosion can shorten this significantly.
- **Industrial/Harsh Environments:** Can see shorter lives, sometimes as low as 4 years due to abrasive or corrosive media.

When to Consider Replacement:

- Persistent leaks (internal or external).
- Significant loss of efficiency despite cleaning.
- High repair costs (e.g., frequent gasket replacements).
- Contamination between fluid streams (internal plate failure)



Health & Safety Accreditations



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Rolling New Gaskets



Gasket Style



Gusset Style Plate

When a heat exchanger develops an internal or external leak, or if it needs to be cleaned, customers often ask how long do the plates last. Pressure, temperature, media, abrasion, plate/gasket material, thickness, spiking, water hammer, & differential pressure all effect the life of the plate. The older a plate, the higher the pressure the more the gasket track will dish.

As a general rule HVAC cooling HXs plates last 25-30 years, assuming 316SS, 0.6mm. If they are 0.4mm 2-6 years (since they are prone to stretching & deforming, we don't recommend servicing.

For industrial applications 2-10 years is typical.

On Boiler water or steam systems 10-15 years.

The OEMs design of the frame, pressure plate thickness, & plate hanger style also impact the life of the plate. Thicker pressure plates, the # & diameter of the tie rods, & Omega clip vs gusset style plate hangers also effect longevity.

If the decision is to install a new plate pack, the following THS quality control procedures include:

- Each plate is checked with a Niton XL2 100G XRF analyzer gun to verify PMI (positive material identification)
- The plate thickness is conformed using calipers.
- All gaskets are visually checked for defects. A tug test is performed checking for weak areas.
- All gaskets are fully glued using 3M #1099 rubber adhesive. On high pressure/temperature applications, a two-part epoxy can be used.
- For quality control & tracking purposes, all plates are laser engraved with the job number.



Dished Gasket Track



Omega Style



Caliper Plate Thickness



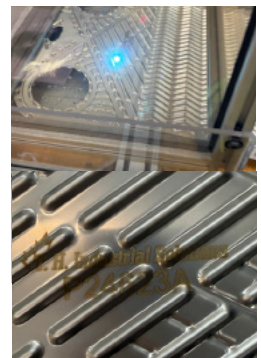
Applying Rubber Adhesive



Gasket Tug Test



Niton XL2 100G XRF



Laser Engraving