

## Problems Cleaning PHEs Onsite Using High Pressure Water

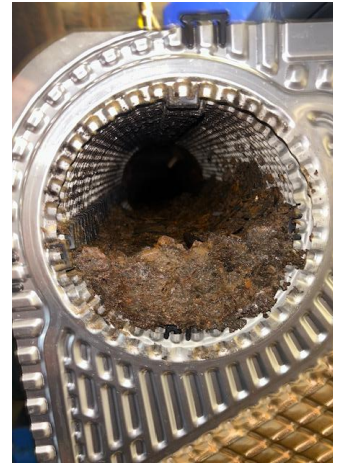
Due to time constraints and cost, customers often request that their Plate & Frame heat exchanger is cleaned onsite using high pressure water. The Pros & Cons of this service option are as follows:

### Pros:

- The PHE can usually be cleaned in 1-day.
- The cost is significantly less than plate refurbishment or installing a new plate pack.
- Since the plates don't need to be removed from the building, there is less inconvenience to the tenants. Elevator use is not required.

### Cons:

- The effectiveness of the cleaning cannot be guaranteed.
- If local buildings have been imploded or there is new construction, dust can become airborne. The concrete in the dust can be blown into the cooling tower. This will contaminate the heat exchanger & harden on the plates. Using high pressure water will not remove this.

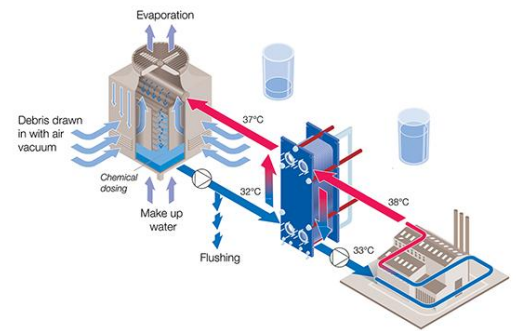


Internal HX Fouling



Hardened & Compacted Gasket

- The average life of a gasket is 10-13 years in cooling tower applications. When old gaskets are re-used, they can be flattened & hardened. In this condition the HX is likely to leak.
- Over 50% of plates used for cooling HVAC are 304SS, 0.4mm thick. These plates are prone to stretching/deforming & the gasket track dishing. When this occurs, gaskets shift & the PHE will not seal.
- Unless old plates are extremely clean, new gaskets may not seat correctly causing drips.



Open Loop Cooling System with PHE



As part of T.H. Industrial Solutions corporate social responsibility, each time an order is placed with our company a tree will be planted by Forests Canada. Over a lifetime, with the addition of each tree, eventually a forest will be created which will help to ensure the health of our environment for future generations to come

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Contaminated Plates

**Notes:**

- The age of the HX, whether it is used for heating or cooling, the plate material, thickness, gasket material, temperature & pressure all effect the level of risk associated with attempting to clean onsite.
- We only recommend onsite service if it is an emergency, caused by limited heating or cooling & the PHE cannot be out of service for longer than 8-10 hours.



3500 PSI Water c/w Rotary Nozzle



Fouling



HP Water Cleaning Not Effective



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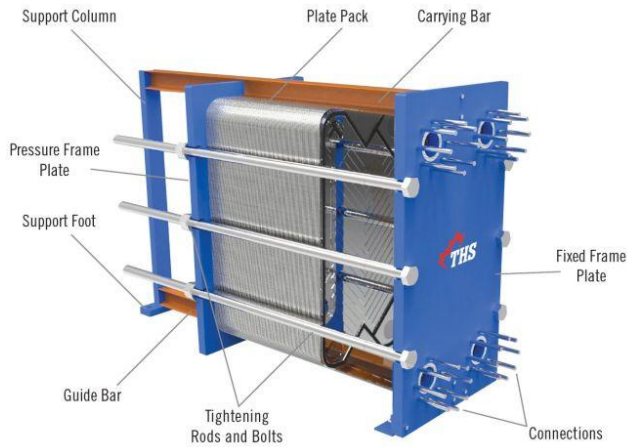
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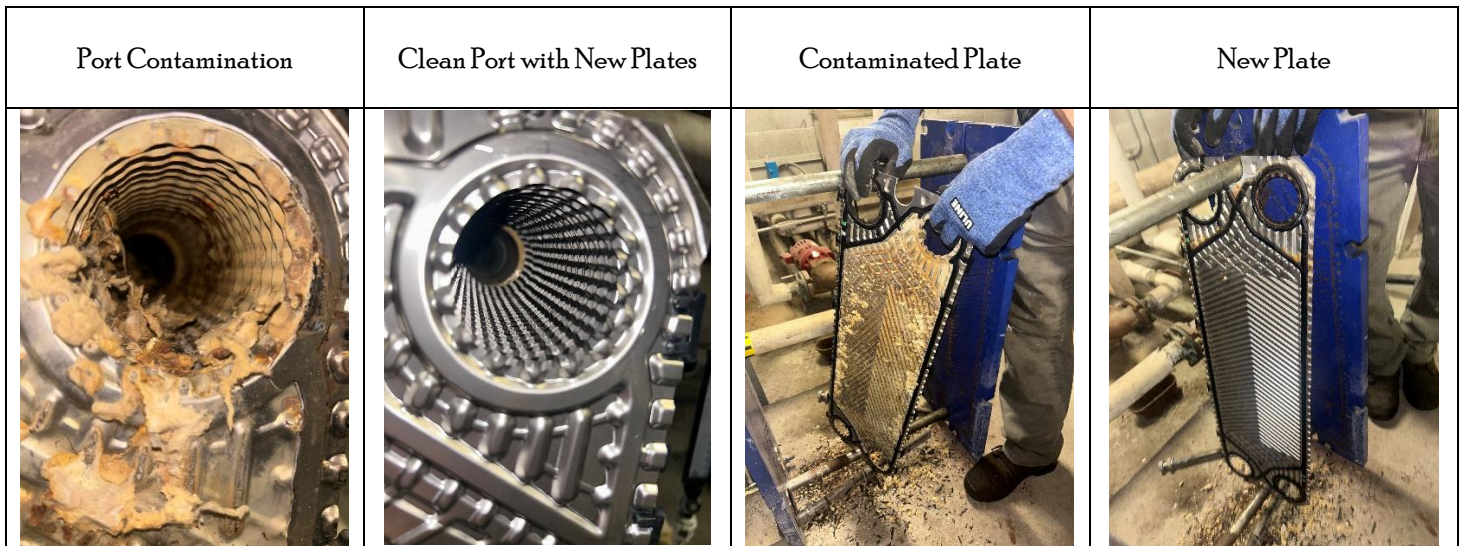






## Benefits of Replacing Plate Pack

- Low down time (few hours) compared to full-service option (3-6 weeks)
- Other than the tie rods, most of the other PHE components do not wear.
- When a new pack is installed, you basically are getting a brand-new PHE.
- Since the new plates are 316SS, 0.6mm thick, you will get longer service life with less chance of leaks.
- This plate combination allows the PHE to be refurbished in the future.



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