

Risk of Servicing PHE's with .4mm Thick Plates

T.H. Industrial Solutions does not recommend servicing heat exchanger with 0.4mm thick plates. Previously when we have worked on heat exchangers with .4mm we find that the plates are prone to stretch, deform and the gasket track dishes. When this occurs, the PHE will not seal. Each time the PHE is opened to adjust, the condition gets worse since the retightening causes the plates to be crushed. In emergency situations we have serviced PHE's with 0.4mm plates and have gotten them to seal. However usually within a few years the heat exchanger will develop new leaks.

We recommend upgrading to 316L S.S. 0.5mm or 0.6mm thick plates. Also using 316L SS instead of 304 SS is preferred since it is a stronger material, which will permit the customer to service the plate pack multiple times in the future.

About 15 years ago, for HVAC applications, many OEM's started offering 304SS, 0.4mm plates. The cost was cheaper, and less plates could be installed. To remain competitive other OEM's (like Alfa Laval) were forced to offer this same combination. This was a poor engineering decision that looked good on paper, but not so good when the HX needed service.

Below are comments from a former Alfa Engineer:

Subject: 0.4mm VS Upgrade

Alfa Laval installs 90% of cases with 0.4mm in first equipment to win the order for the complete unit. Frequently 0.4mm has problems also in the new unit when it is assembled (lateral sliding). So, in these cases Alfa Laval replaces the 0.4mm plate pack with 0.5mm; thus, 0.5mm must be considered an upgrading of the 0.4mm for these reason –

1) LONGER LIFETIME OF THE SYSTEM (PLATE AND ALSO GASKET) The system plate/gasket have less mechanical stress from the tightening so less plate movement (lateral, up-down, turn) so gasket has less job to maintain the system up and avoid leakage. Plates deform less from the tightening stress.

2) LONGER MAINTENANCE INTERVAL (cost saving)

3) HIGHER RESISTANCE TO A PRESSURE SPIKE DURING RUNNING/START UP/SHUT DOWN

4) LESS PROBLEM IN COLD LEAKAGE (DURING SHUT DOWN) when the unit is full but cold

5) EASIER TO OPEN, CLEAN, AND CLOSE FOR MANY TIMES WITHOUT PLATE DEFORMATION

6) 0.4mm was considered "A CHEAP POOR SOLUTION TO WIN FIRST INSTALLATION OF PLATE HEAT EXCHANGER"



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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