



## More from the district heating network with Energy Hunter

**Bucheon City, South Korea**

Technology conversion from shell-and-tubes to gasketed plate heat exchangers, enabled cooling the district heating water to lower temperatures. The transformation enabled getting more heat, with lower pumping costs and securing peace of mind for the tenants, with more comfortable warmer room temperatures.

Owner manager of Alfa Engineering Mr. Seho Kim, states that, providing comfortable heating and peace of mind for tenants, at Kundayong Apartments, Bucheon City in South Korea, has been rewarding. Comfortable heating and saving money, thanks to the use of a more efficient heat transfer technology

Alfa Engineering was preferred by the Apartment management because of supporting materials, technical review of the specifications, using the ROI tool to

estimate gasketed plate heat exchanger selection, and presenting a report on savings in heat, pumping costs and payback period. The discussions were around data on how much heating costs, can be reduced compared to the existing shell-and-tube heat exchanger.

The savings were in the form of energy efficiency, pumping costs and more effective use of the heat, available from the district heating network.

**The problem**

The installed shell-and-tube heat exchangers had a very long history of under-performance, regular maintenance, requiring heavy machinery and challenges removing the tube bundle. The residents were not getting sufficient heating, to a comfortable room temperature and the only solution they had was to regularly clean the shell-and-tube at each complaint.

Local South Korean laws also demand shell-and-tube heat exchangers must undergo pressure vessel inspection every two years, but gasketed plate heat exchangers are not subject to inspection.

The challenge however, was how to replace the old shell-and-tube with newer technology gasketed plate heat exchanger, with a lack of information about its specifications, flow rate, temperatures in/out and pressure drop?



Before

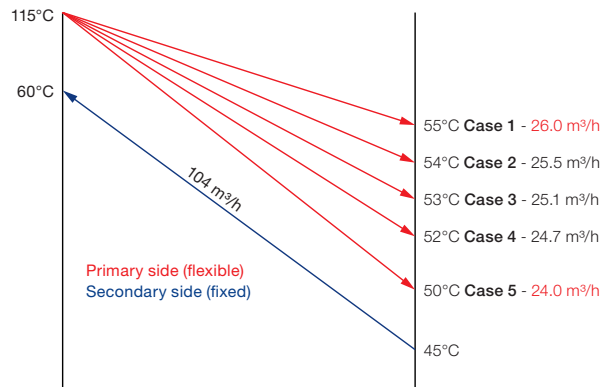


After

**The solution**

To install an Alfa Laval gasketed plate heat exchanger, meant that more heat could be transferred from the district heating network, providing comfort for the residents. That is by cooling the district heating water to lower temperatures. This also was a gain for the district heating network operators, as the lower return water temperature meant a relatively lower flow rate was used to heat.

Replacing the old shell-and-tube technology with a gasketed plate heat exchanger, the external dimensional information, was used in the Energy Hunter Value Calculator. An approximate equivalent heat transfer area, was estimated to be 1/4th that of the shell-and-tube. The new gasketed plate heat exchanger took up less space and was easier to install. The new heat transfer technology provided faster water flow rates, higher channel velocities, hence the units stayed clean longer, with optimum heat transfer efficiency.



Temperature & flow rate change (according to heat exchanger thermal efficiency)

**Why Alfa Laval?**

First of all, it was not easy to explain technical aspects to customers says Mr. Seho Kim. The apartment management did not know much about it. Building trust with them was the first thing Alfa Engineerin g had to do.

Compared to other brands, Alfa Laval latest CurveFlow™ technology, ensures the unit stays clean longer. The water is better distributed in the channel, avoiding dead spots, and utilising the complete plate surface for heat transfer.

The shape of OmegaPort™ provides more room for flow, enabling less wastage of pressure drop across the ports and leaving more available, for efficient heat transfer in the channels.

These features ensure the unit stays clean longer than most other global brands, let alone a shell-and-tube heat exchanger, which has the lowest flow velocities, poorest heat transfer efficiency and highest pumping costs.

**Sustainability savings**

- Reduction in heating costs with a rapid effect
- Lower pump power as less water is needed to exchange heat
- Lower electricity consumption
- More space available in the machine room
- Less labour needed to install and commission, chemicals & tools for maintenance
- Less risk of injury during shell-and-tube maintenance
- Peace of mind for the tenants

**How to contact Alfa Laval**

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com)

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