



How to design the optimal heat exchanger setup for your needs

DAIRY, HEAT TRANSFER

Discover why it is so important that heat exchangers are specially configured to meet your precise production needs – and how Tetra Pak does it.

Investing in a heat exchanger is not like choosing an appliance off the shelf. A heat exchanger solution needs to be configured to meet your production line and its requirements.

A specialist supplier will analyse your production process and future plans before configuring a solution specifically configured to your needs. That is what we always do at Tetra Pak. Here is how.

The first step is knowing what products you produce and how you produce them. Your heat exchanger needs will vary according to your product – whether it is milk, yoghurt, juice, ketchup, wine or something else.

There are three main types of heat exchanger: plate, tubular and scraped. For optimal effect, you will require one or more of these – and sometimes all three – in your line.

The number of units and their size will depend on five main variables: the type of product, the type of process, the amount you produce, the energy consumption, and your production runtime.

To create the right design, viscosity data for your product is a vital information source. Viscosity can change during heat treatment, requiring different combinations of heat exchangers.

8,000 food products in database

Tetra Pak engineers often combine plates with tubes, and also use different sizes of shells and inner tubes for the same product depending on how fluid changes with temperature, says Inge Kristensson, Tetra Pak Application Specialist, Heat Transfer.

He explains: "When the customer has a complex and perhaps a more viscous product, we typically ask for samples, processed and unprocessed, to be sent to the Tetra Pak laboratory for measurements from a viscosity point of view. Data is then stored in our database of around 8,000 products. Based on measured data, we can decide the size, number and type of heat exchangers and configure the setup to the customer's production needs."

Other important data are chloride content, the presence or absence of particulates and fibres, expected running times and desired energy consumption.

All these affect the design and configuration of your heat exchanger.

"We have a huge number of different tubes and plates at different sizes – around 15,000 different pieces we can put together. What we do is combine them. That's configuration," Kristensson says.

Made to measure

It is a bit like an architect designing a building. The client specifies the building's purpose and, perhaps, elements like number of rooms or floors. The architect then produces a design to meet those requirements.

Tetra Pak does this using its own complex technical design tool, Quantum, combined with data from the unique 8,000-product database mentioned above.

Often, says Kristensson, customers imagine they need one type of heat exchanger when, in fact, a different type would do the job much better, both from a product-quality perspective as well as a cost perspective.

Investing in a new heat exchanger can have a significant impact on your operations. So what should you think about before you invest?

“That’s where we, with our decades of experience and knowledge, will guide you to make exactly the right choice for your production.”

Have a chat with us to discuss key considerations for heat exchangers that suit your production needs.

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