
On-site trials: a low-risk approach to proof of concept

By Matt Hale, International Sales & Marketing Director, HRS Heat Exchangers

There is a lot of truth to the old saying ‘seeing is believing’. There’s nothing like seeing the results with your own eyes in order to tell whether or not a trial has been successful; if a new product is everything that you hoped for; or if changes to production have delivered the expected improvements in product quality. Trials are also invaluable for assessing product quality parameters such as appearance or organoleptic performance, testing packaging designs and consumer research, producing samples for chemical or microbial analysis, or even assessing the feasibility of production.

However, due to the complexity of modern food production systems, it can be hard to assess multiple options and small production runs. That’s why HRS has developed a range of portable and trial units, which allow clients to test a variety of equipment including tubular and scraped surface heat exchangers, pilot evaporation plants and mobile piston pumps.

Trialling production techniques

If you already have a successful product, making changes to the way in which it is produced or formulated can provide cost savings or other margin improvements; but it is not without risks. Before making wholesale changes – for example, altering the temperature and time regimes for a pasteurisation process – it can be reassuring to find out what the effect on both your product and overall process will be. After all, nobody wants to invest in major changes to production equipment which then have to be reversed due to adverse consumer reactions or an unsafe product.

One way to do this with heat exchangers is with a trial unit for in situ testing of equipment, or by performing trials and analysis on raw ingredients and products for the client at the manufacturers’ own facility. These types of trial not only help to inform the design of the heat exchanger, but can also provide buyers and users with the confidence to invest in, and install, new equipment.

General advantages of trialling products

In today’s competitive market, companies, their clients and consumers are all looking for the next trend. For many food businesses, the development of new and existing products is therefore as important as the production of existing lines.

Trialling products also helps companies to sell them in the longer term; whether demonstrating the benefits of a new line to the board in order to obtain internal funding for product development, or producing samples for retailer and consumer feedback.

In some markets, trials are required for products to be approved prior to sale; for example, where products make distinct nutritional or health claims it will be necessary to prove these scientifically. Trials also allow potential production issues or glitches to be identified and rectified before investing in a full-size production facility, and can even inform assessments such as Hazard Analysis and Critical Control Points (HACCP) before full-scale production is required.

Equipment to facilitate in-house trials

Buying dedicated equipment for trials can be prohibitively expensive. However, good equipment which is flexible enough to be used for a wide variety of trial and production purposes can quickly repay the initial investment. To facilitate this type of trial, HRS has produced a range of trial-size equipment with the reliability and performance of their full-size counterparts, but which have been specifically designed to be easily portable between production lines or even sites.

The HRS Asepticblock Mini Series allows manufacturers to produce new trial products involving pasteurisation and aseptic packing without the expense or wastage that can accompany full-scale trials. It also alleviates the need to suspend or interfere with routine production. The HRS Asepticblock Mini Series enables production of a full-scale final pack, but using as little as 20 kg of product.

Another aid to conducting trials is the HRS BPM Series of reciprocating, positive-displacement pumps. The BPM is a mobile version of the standard BP Series pump, which is mounted on a mobile skid unit for easy movement, allowing it to be used across multiple production lines and locations. This makes it popular with food manufacturers producing short runs of specialist products and numerous trials, as they can enjoy the benefits of a BP Series pump without the need to invest in a dedicated pump for each line, resulting in considerable capital savings.

The modular nature of many HRS heat exchangers means that we can also provide trial units of many of our heat exchanger models. Recent examples using trial versions of the HRS R Series of scraped surface heat exchangers have included a chocolate manufacturer, cheese producer, a jam factory and for wax production. In each case mounting the trial heat exchanger and relevant controls on pallets or a purpose-designed suitable skid frame not only aids delivery and installation of the equipment, but makes it easier to move around production facilities, for example to investigate the use of different lines and possible installation locations.

Another benefit of the R Series is its ability to recover product at the end of production runs. By running the unit in reverse a large percentage of the hold-up volume is recovered, with this function being demonstrated trials with viscous products such as pet food and custard.

Investing in any new processing equipment not only represents a significant capital outlay, but results in inevitable disruption during installation, however by trialling equipment prior to investment both users and manufacturers can be sure that the best solution has been chosen.

Images attached with captions

Opinion Piece

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<p>Matt Hale, International Sales & Marketing Director, HRS Heat Exchangers</p> 	<p>The HRS Asepticblock Mini is a complete yet portable aseptic treatment and filling machine which can process small quantities of trial products</p> 	<p>The HRS BPM Series of positive displacement pumps is mounted on a mobile skid unit making it ideal for proc</p> 
<p>A skid-mounted version of the HRS R Series of scraped surface heat exchangers undergoing trials in the proc</p> 	<p>A trial version of the HRS R Series installed on a jam production line</p> 	

About HRS Heat Exchangers

Located in the UK, HRS Heat Exchangers is part of the HRS Group which operates at the forefront of thermal technology, offering innovative heat transfer solutions worldwide across a diverse range of industries. With almost 40 years' experience in the food sector, specialising in the design and manufacture of an extensive range of turnkey systems and components, incorporating our corrugated tubular and scraped surface heat exchanger technology, HRS units are compliant with global design and industry standards. HRS has a network of offices throughout the world: Australia, New Zealand, UK, Spain, USA, Malaysia and India; with manufacturing plants in the UK, India and Spain.

For UK media enquiries about HRS Heat Exchangers please contact:

Yenni Maelianawati, Senior Marketing Manager, HRS House, 10-12 Caxton Way, Watford Business Park, Watford, Herts. WD18 8JY

Tel: 01923 232 335

Direct Email: yenni@uk.hrs-he.com

Email for publications: info@uk.hrs-he.com

www.hrs-heatexchangers.com