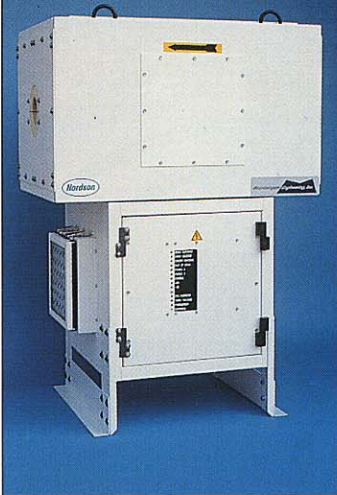


Right: the Nordson/
Mountaingate can
end steriliser —
using techniques
already employed for
curing end
compounds.

A revolutionary new application for induction heating enables steel can ends and bodies to be sterilised, greatly simplifying the aseptic canning process. Hilary Schrafft reports.



gas and electricity — to drive the motors,” says the packaging buyer involved with the trial. “The induction steriliser also runs faster, the sterilisation process is instantaneous, compared with flame systems which typically run at speeds of 300 ends per minute.” The induction unit sterilises approximately 600 ends per minute from one line. The model being developed for can bodies achieves speeds of up to 600 cans per minute. Other models with higher throughput will also be available.

With flame sterilisers can ends need a dwell time in order to be made sterile. The sterilising unit therefore has to be quite long — one to two metres — compared with only 107cm (42-in) with the induction steriliser.

Another advantage is that the handling of the ends is far gentler. Because the ends are passed through the unit in stick form, resting inside the Pyrex tube, there is virtually no abrasion.

Power consumption is said to be reduced by about 70 percent compared with traditional gas heating systems. This is because the induction heating process is fast and controllable, and because the Pyrex tube minimises heat transfer back from the ends to the coil. In addition, the induction sterilisers do not have to be pre-heated.

The temperature of ends is monitored as they leave the enclosure, and a microprocessor automatically moderates the power level to meet the required temperature. In the case of line stoppages, a low-power standby system keeps the temperature of ends constant.

“This system would lend itself well to other types of packaging,” says Mr Zajac. “It would be ideal for many products which do not need a process as severe as thermal sterilisation. We already have another group which is looking at these possibilities,” he reports.

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THE BIG HEAT

A new Can-End Induction Steriliser, developed by Mountaingate Engineering, opens up a whole range of new aseptic can filling opportunities. Already used in trials by a major international food filler, Mountaingate’s parent company, the Nordson Corporation, is launching the system for commercial uses.

Aseptic techniques, in which product is filled into sterile containers, thereby lengthening the shelf-life of the product, are sometimes used for dried and granulated products packed in cans. A product such as milk powder, for example, does not require a full sterilisation process, but benefits from being packed hermetically within a sterile environment.

Traditionally in aseptic can filling, steel can ends are sterilised using gas-fired ovens or high-temperature steam systems. “Both of these methods are somewhat cumbersome,” says Mountaingate’s general manager, Robert Zajac. “The Can End Induction Steriliser is just a small box which

heats the ends to 160 deg C.”

The principle of induction-heating involves the generation of an eddy current through a conductive material. In this case the box contains a series of coils wrapped around a Pyrex glass tube, through which ends are transported in stick form. The power source is converted to medium frequency via a generator, and fed through the copper coil, generating a fluctuating magnetic field. The steel ends are heated by the fluctuating eddy currents that are produced within the material. After sterilisation, the ends are fed directly into a clean-room environment for the filling process.

Having installed the first end steriliser at one of its operations in South East Asia, Nordson’s customer is planning to install two additional units at the same location and two at a factory in South America. The company also plans to install the first can body steriliser at its South America plant.

“Unlike induction sterilising, flame and steam sterilisers require a lot of utilities — in the form of