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## Monobloc Steriliser - Innovative Aseptic Process Technology

**T K Radhakrishnan**

Fruit pulps and pastes are key ingredients for preparing a range of food products. Good quality and extended shelf life of the final product is a key market demand. Processing of fruit-based pulps and pastes have evolved from traditional methods to technologically advanced methods like pasteurisation, sterilisation and aseptic processing. The main factors for improvisation are better product quality in terms of natural colour and flavour, to retain nutritional properties, extended shelf life and ease of packing and transportation for further processing and/ or consumption.

HRS Process Systems Ltd has recently supplied the HRS Monobloc Steriliser; a complete system for aseptic sterilisation and filling of fruit pulp for processing plants in Krishnagiri district of Tamil Nadu, south India. Sterilisation means the elimination of all forms of pathogens and organisms to allow excellent microbial quality of the product thereby achieving better product shelf life and safety.

The system is an integration of steriliser and filler on a single skid fully automated with PLC-based controls. This system is designed to process upto 7,000 kg per hour of fruit pulp/ puree concentrate of high viscosity and comes with aseptic filler for bag-in-drum filling mechanism. For preparation before sterilisation, the fully ripened fruits are washed, sorted, peeled, deseeded and pulped through pulper and finisher to get clean pulp which then are pasteurised through the Ecoflux Corrugated Tube Heat Exchanger (CTHE)-based pre-heater pasteuriser and then passed through a separator to remove unwanted particles and fibres. The heart of the steriliser are the Ecoflux AS series CTHes which enable heating upto 115OC and cooling upto 25OC, piston pump for homogenising and de-aerator with automatic vacuum control system supported with CIP pump and peripherals.

The filling section of the monobloc is with the HRS Aseptic Filler, which has fully automated, double filler heads with bag clamping system, conveyor to support the drums and a steam line for sterilisation of the filling chambers.

**Features of the Product:** Compact unit of aseptic steriliser & filler; Designed with Ecoflux CTHE for maximum energy efficiency; Optimal velocities & turbulence for consistent processing; De-aerator for automatic vacuum control; Homogeniser for uniform particulates; Bag-in-drum filling; Integrated CIP for easy maintenance; and Complete PLC-based automation.

**Advantages & Benefits:** Hygienic end-product; Better aroma retention due to HTST technology; Continuous processing gives consistent quality; Longer shelf life at ambient storage conditions; Easy-to-operate PLC controls; Impeccable services support; Lower labour costs; CIP to ensure sanitation; Bulk packaging enables easy transportation; Higher savings due to higher energy efficiency; and Lower maintenance, Higher returns on investment.

**Applications of the Product:** This system is suitable for processing a wide range of raw fruits/ foods such as Mango, Guava, Papaya, Banana, Tomato and many more. Sterilisation & Filling of fruit pulp; Concentration of fruit pulp; and Pastes & Puree processing.

*(The writer is associate VP, food systems BU, HRS Process Systems Ltd)*