

# Monitoring and controlling the retort process

## Recording and control in the food industry



Ensures high quality retorting with increased productivity and operational efficiency

### Measurement made easy

## Introduction

Much of the food consumed each year is preserved by packaging it in hermetically-sealed containers in a process known as canning.

One of the most important steps in the canning of foods is 'thermal processing'; more commonly referred to as the retorting operation.

In this operation, strict specifications concerning both time and temperature must be adhered to and repeated, batch after batch, to obtain sterile product of uniform quality.

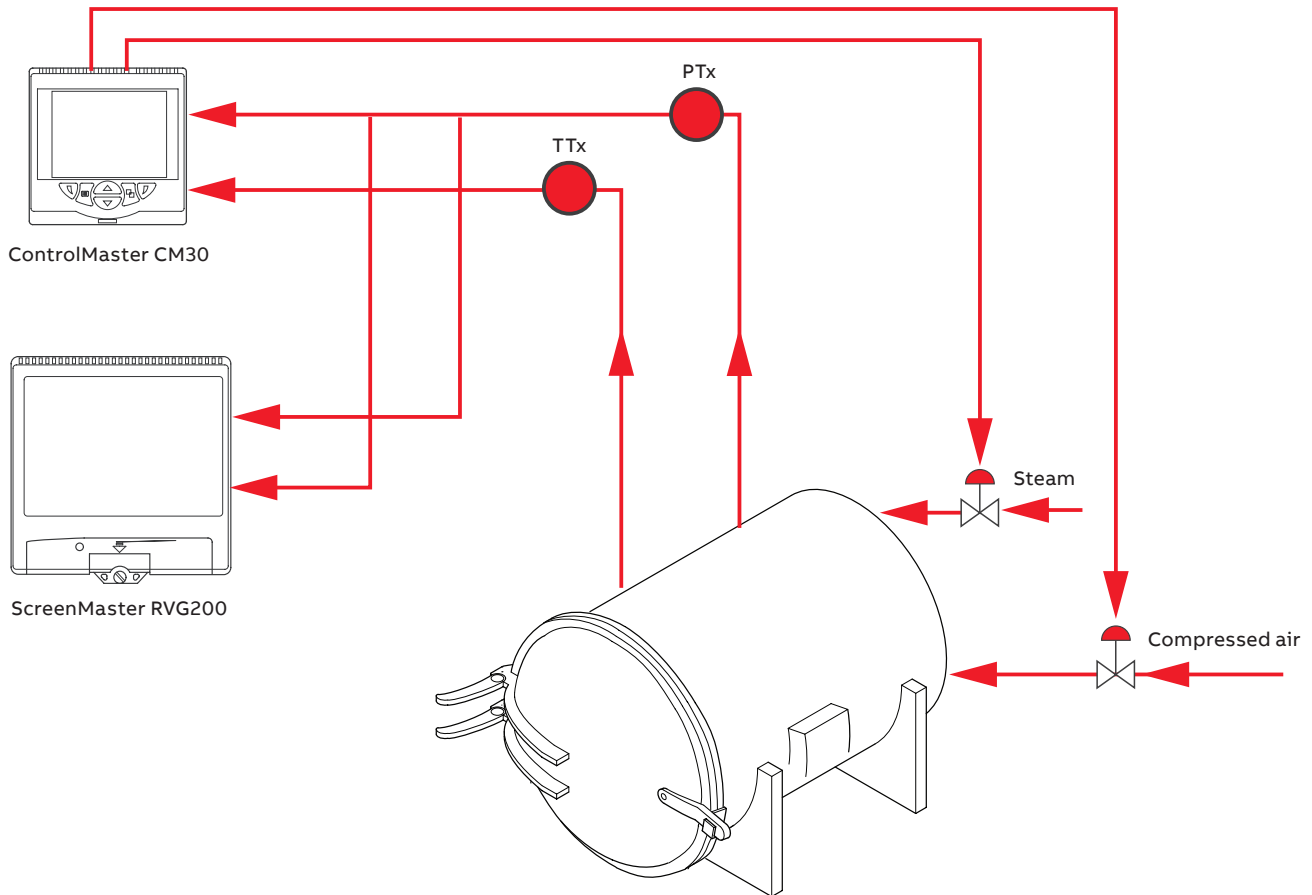
Thermal processing is performed in batches using a cylindrical pressurized vessel called a retort. Retorts are classified as vertical or horizontal, depending on the position of their long axis; a vertical retort is loaded from the top, a horizontal retort is loaded from a side end.

In either retort type, the canned product is cooked by 1 of 2 processes:

- steam cooking, for product stored in metal containers
- water cooking, for product stored in glass jars

Steam cooking is performed in a steam atmosphere devoid of air. Water cooking is performed in steam-heated water.

## The process



### Retort process overview

ABB's ScreenMaster and ControlMaster range of products are widely used in retort processes. The ControlMaster controller (or a PLC) is used to control the temperature and pressure inside the retort.

The profile control feature in ControlMaster is widely used in retort process for set point profiling. Special new features such as guaranteed ramp/soak, self-seeking set point and 8 segment events, together with the ControlMaster's existing maths, alarm, interlocking logic and control capabilities makes ControlMaster well-suited for complex retort processes.

ABB's paperless recorders, protected to NEMA 4X and IP66 as standard, are used to record critical process parameters such as temperature, pressure and door open or close signals. Also the batch recording option in ScreenMaster enables data, including batch numbers and product type information, to be recorded alongside process data.

With ABB's DataManagerPro software, collected batch records can be displayed rapidly by searching for their batch number or batches with common attributes identified.

## What ABB products are suitable?

### ScreenMaster RVG200

ABB's ScreenMaster recorders offer a versatile, secure and proven alternative to traditional paper-based devices.

ABB's ScreenMaster range is ideal for recording the temperature and pressure of the retort process making it easier for the data validation process.



ScreenMaster RVG200

ScreenMaster features include:

- high specification 21CFR Part 11-compliant data security
- high visibility process displays
- remote access and operation via Ethernet
- hose-down protection to IP66 and NEMA 4X
- automated process data management
- batch recording option enables simple recording and reviewing of batch processes

#### Batch recording

The RVG200's batch recording option provides a simple means of recording when a particular batch is started or finished. This data can be reviewed using ABB's DataManagerPro analysis software.

DataManagerPro provides a quick and simple way of retrieving batch data. Data can be retrieved by entering the batch number, searching by type or product or by specifying the time and date of processing.

#### Barcode scanner

With the RVG200, you now have the option of connecting a barcode scanner into the device's front or rear USB port, providing a fast and more accurate alternative to manually keying in batch information.

Batch information can be scanned directly from product paperwork, eliminating the scope for human error.



Barcode scanner

### ControlMaster controllers

ABB's ControlMaster range elevates process monitoring and control to an altogether higher level. ABB has used its experience in controllers and indicators to create a new generation of process control instruments that are more intuitive, easier to operate and significantly more powerful in use.

With their full-color, TFT displays, all controllers in the ControlMaster range provide operators with a clear and comprehensive overview of process status and key information. These displays can be tailored to show specific process data, while a chart display provides short-term trending information.



ControlMaster controller range

Other ControlMaster features include:

- a choice of communications options including Ethernet and MODBUS.
- Ethernet communications can provide automatic notification of critical process events via email or remote monitoring of the controller and process via the ControlMaster's integrated web server by simply addressing it in a standard web browser.
- MODBUS (RTU or TCP) enables easy integration with larger control systems (for example, Freelance or 800xA), and allows both read and read / write access to real-time process value data as well as most other variables.
- NEMA4X (IP66) rating as standard, making them suitable for use in almost any location in a modern food processing plant, where cleaning of all surfaces takes place.

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