

## HEAT/HOLD TECHNOLOGY

**“When you think STEAM, you think ABCO”**

Heat penetration to the center core of any product is a function of temperature and time. The shorter the duration in the heat medium, the better the retention of colour and nutrients.

Pure steam blanchers and hot water blanchers keep product in the heat medium until such time as the desired center core temperature is achieved, ignoring the time factor in heat penetration and overcooking the outer part of the product.

ABCO's Heat & Hold System introduces only enough steam into the HEAT CHAMBER as is necessary to heat the surface of the product. This surface heat penetrates through the product in the HOLD CHAMBER, raising the center core temperature to the desired blanch level without adding more steam.



“Edgell-Birds Eye, Devonport, continues to receive very positive comments relative to texture and colour achieved with ABCO's unique heat and hold blanching technique. Importantly, this is being achieved with energy savings beyond that originally quoted by ABCO.”

*Glen Graham, Plant Manager  
Edgell-Birds Eye, Australia*

## FEATURES

- ABCO's unique L-Series Blanchers consist of **separate Heat and Hold sections** in a common main frame assembly.
- The main frame is constructed of **stainless steel**, double skinned with 3: (7cm) wall thickness and fully insulated for maximum energy efficiency.
- **Large access doors** over the full length of the machine on both sides, plus end doors, give unlimited access to all machine internals for cleaning and maintenance.
- Each conveyor has an **independent AC variable speed drive** for fine tuning retention times in both the Heat and Hold sections.
- The **steam flow control package** keeps steam flow to a minimum, saving energy and providing an easy way to monitor the machine's performance during operation.
- L-Series Blanchers are **easy to install, operate and maintain**.

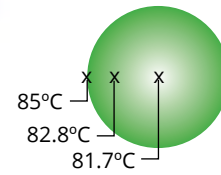
## BENEFITS

- lower operating costs
- lower water consumption
- environmentally conscious\*
- better colour, flavour and texture
- more nutrients retained

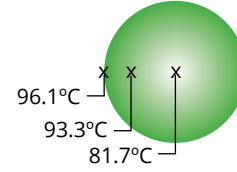
\* reduced effluent contains less BOD (biochemical oxygen demand), less COD (chemical oxygen demand) and solids, reducing the amount of organic compounds in the water



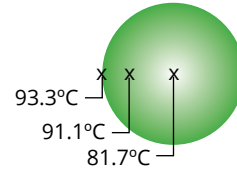
## AVERAGE TEMPERATURE COMPARISON AT POINT OF DISCHARGE



**ABCO Blancher**  
Heat/Kg peas = 153.1 kJ



**Hydrostatic Steam Blancher**  
Heat/Kg peas = 166.3 kJ  
8.5% more than ABCO



**Standard Water Blancher**  
Heat/Kg peas = 163 kJ  
6.5% more than ABCO

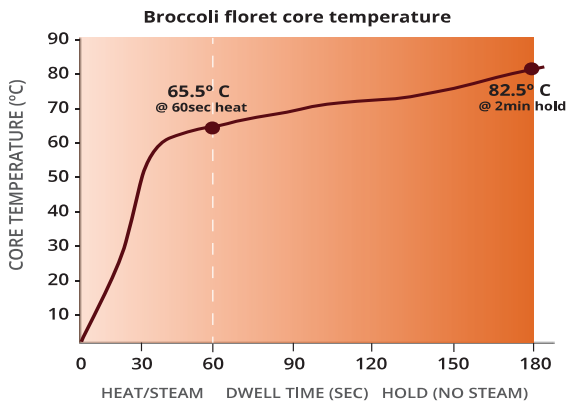


## EXPERTS IN STEAM/THERMAL PROCESSING OF VEGETABLES AND SEAFOOD





HEAT PENETRATION CURVE MEASURES THE HIGH ENERGY EFFICIENCY OF THE HEAT/HOLD PRINCIPLE



#### FINDINGS:

1. High energy efficiency
2. An even temperature spread is achieved and monitored by a multi-station, thermocouple temperature recorder.
3. Enzyme Test : Raw – heavy; blanched center/top/bottom layers: negative

#### CONCLUSION:

The limited exposure to heat in the Heat/Hold process leads to noticeable improvements in colour, nutrient retention and firmness, particularly when compared to a hot water blanching process.

Appearance, quality and taste is beneficial to the food industry and is reflected in consumer demand.

“We’re fairly confident that people are always going to eat, so there’s always room for development of new products. We’ve seen a significant increase in global demand for our food processing machinery.”

*Graham Gerhardt,  
President, ABCO*

## RESEARCH AND DEVELOPMENT

Heat/Hold blancher technology is the result of years of research and development work in collaboration with Food Technology scientists at the **Agriculture Canada Research Laboratory** in Kentville, Nova Scotia.

Development objectives centered on achieving maximum energy efficiency and significantly improving product quality over conventional blanchers. The patented ABCO L-Series Blanchers surpassed original goals in every respect.

- **Enhanced colour retention** – lab measurements verify enhanced product appearance that is also noticeable visually when comparing product processed using Heat/Hold technology to conventional blanchers
- **Nutrient retention** – test data indicates a 52% increase in the retention of ascorbic acid in broccoli compared to conventional water blanch processes. In fact, all vegetables tested retained higher nutrient value.
- **Enhanced flavour retention** – taste panel tests verified flavour improvements in products processed by ABCO blanchers.
- **Reduced effluent levels** – the production of effluent is a major concern for food processors. ABCO’s Heat/Hold process produces merely one-tenth the volume produced by a conventional water blancher, with total BOD level reduced by approximately 20% when operating at equivalent product capacity. Responsible food processors are looking to reduce or eliminate environmental concerns.

If you are looking for that competitive edge in food blanching, ABCO’s Heat/Hold process is a must.



## BLANCHER SIMULATOR

All the research is well-documented, but the real test is when you see an actual cook/blanch take place. It is essential that our customers are able to rapidly compare the results of different blanch parameters, particularly for taste, texture and appearance. Our simulator allows you to do just that.

The ABCO Blancher Simulator accurately simulates the four common blanch methods. Use of the simulator can reduce traditional research time and cost by a factor of 10!

## POTATO PROCESSING RESEARCH

Reducing production costs, while enhancing product quality for mash, flake, and potato salad has always been a major challenge for processors both large and small.

ABCO's well-established commitment to research and development has lead the way in developing energy and water efficient blanching techniques for a very wide range of fruit and vegetables and it seemed opportune to turn the spotlight of this expertise into the field of potato processing.

This resulted in an 18 month study by ABCO engineering staff working with Food Technology Scientists from **Agriculture and Agri Food Canada** on a new research project entitled, ***Study of Processing Parameters for High Quality Dried and Frozen Potato Products.***

In the first phase of this study, samples of potato mash were produced by varying the processing parameters. For example, whole versus sliced potatoes, and the ABCO Heat/Hold steam cook versus a three step water cook. Descriptive sensory analysis (DSA) and/or instrumental analysis were used to assess the quality of each sample. There are some interesting preliminary results to report:



### COLOUR ANALYSIS

**Lightness:** ABCO Heat/Hold-cooked potatoes were lighter than water-cooked potatoes.

**Brightness:** ABCO Heat/Hold-cooked potatoes were brighter than the water-cooked potatoes.

**Hue:** ABCO Heat/Hold-cooked potatoes were more yellow than the water-cooked potatoes.

**Uniformity of Colour:** ABCO Heat/Hold-cooked mash was more uniform in colour than the water-cooked mash.



### ONGOING COMMITMENT

ABCO's commitment to research leads to the design and manufacture of quality products that meet or exceed the requirements of the industry.

With ABCO's patented Heat/Hold process L-series Blanchers, foods retain more nutrients and have enhanced colour and flavour, all with reduced effluent levels and lower production costs.

Food processors on four continents now enjoy the benefits of this award-winning blancher technology. At ABCO we believe our success is directly related to the effort we put into collaborative research ventures, and how well we can respond to the unique needs of our customers.

### POTATO PROCESSING CUSTOMERS

For further details and quotations for your specific product, please advise us of your present process (whole, sliced, diced) tons/hr and variety of potatoes.