DOUGH SAVER

Automatic Scaling Weight Divider Control by BSI

Model DSIM

- Touch screen graphical interface and control
- Food grade product contact surfaces
- Heavy stainless steel tube support structure
- High speed 0.1 gram precision weigh cell
- Servo controlled weigh conveyors
- 120 VAC, 1-Phase Power

SPECIFICATIONS:

- Production speeds up to **200** loaves per minute; 2 lanes **400 LPM**
- Resolution 0.2 gram
- Internal Forceless Electric Connections
- Capacity >2 kilogram

BSI Bakery Systems, Inc.

Improved Weight Verification

The Dough Saver Divider Control System employs a high speed high precision weigh cell with .1 gram readability that can provide 1000 weight samples per second. This weigh cell is used in conjunction with a servo driven conveyors. Dough pieces are conveyed to the weigh conveyors. Weight samples are collected that reflect the weight of the dough piece as it moves across the weighing conveyors. An ***average weight*** and ***standard deviation calculation*** determine the dough piece weight along with its degree of accuracy. When the arrival of the next dough piece occurs the weight is compared to the next weigh conveyor and moves the piece onto an exit conveyor for processing. After the desired number of dough pieces are weighed the average weight is calculated and compared to the divider target weight. If an error exists a scaling adjustment signal is sent to the divider. By maintaining an average dough piece weight that is the same as the divider target weight a divider scaling weight reduction is possible to pursue the label weight in the wrap area. A convenient, industrial PC touch screen controller/operator interface manages the process as well as stores the real-time weight information.

Why You Need A Dough Saver

Every baker knows that dough density changes from the time it is dropped out of a mixer to the time it arrives at the divider. That is very significant when trying to measure & divide portions by volume. Ram & Shear or Pocket-type dividers adjust scaling by increasing or decreasing the volume of each portioning chamber. If dough density was consistent, the same size pocket would always produce the same size dough piece. The Extrusion-type dividers with or without a metering pump force Dough through an orifice at a given flow rate. A cutoff mechanism passes through the dough stream at a desired interval cutting a dough piece that is the inner diameter of the orifice with a length that is dictated by how often a cut is made. For example, 1 inch in diameter and 2 inches long. Two factors contribute to scaling errors in this scenario. Firstly, same as the Pocket-type divider, the geometry of your portioning chamber or tube is irrelevant; the same size dough piece will almost never weigh the same. Secondly is the inability to keep the dough flow rate out of the cut off orifice consistent, without over working the dough and creating heat which contributes to changing the dough density, and characteristics.

Bakery Systems, Inc. · 5404 Jedmed Court, Saint Louis, MO 63129 · Office (314) 845-7778 · FAX (314) 845-7779

DOUGH SAVER

Model DSIM

Optional Hardware:

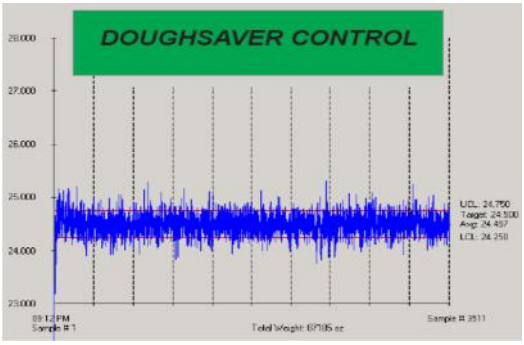
- Down stream conveyors for further processing & reject(s)
- Servo control for multi-pocket dividers aggregate and Individual adjustment
- Desktop PC with check manager software
- PLC based controller with discreet I/O, and communication modules
- Dough piece recirculation system
- Stainless steel adjustable support structure with trough in-feed conveyor
- Validator packaged product weigh system

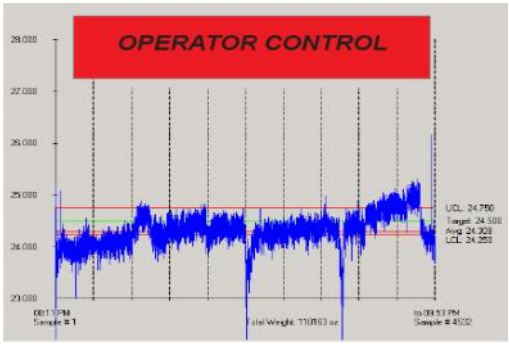
BSI Bakery Systems, Inc.

Divider Control System by BSI

Dough Saver & Validator Data Management "Check Manager"

The PC software allows a supervisor to add, edit or delete any of the Dough Saver's or Validator's product parameters and then transmit these changes to all of the controllers online. The Dough Savers & Validators also respond back to the PC with each loaf weight, label count, and other important information. Check Manager is a data collection system that provides easy to use statistical evaluation functions that allow you to determine your overall process variation, and the relationship of divider weight to wrap weight.





Hands-Free Divider Control

The Dough Saver eliminates the need for manual scaling and adjustment from the operator. Allowing the operator to perform other duties actually re-allocates labor costs associated with manual statistical sampling and adjustments. The first Dough Saver installation occurred in a small bakery in Maine. Where a very astute bakery owner knew that inconsistency in dough density required constant measurement and divider adjustment to maintain a consistent scaling. Prior to installing the Dough Saver, the Benier divider operator was required to weigh every dough piece cut by the divider on a static hand scale. The maximum production rate on this bread line was 20 cuts per minute. The owner determined that every three seconds this operator could…

1. ***Remove the next dough piece from the divider conveyor.***
2. ***Place the dough piece on a static scale, and let the weight stabilize.***
3. ***Determine if the weight was out of range over or under, if so, the dough piece would be thrown back into the divider hopper for rework***
4. ***If the piece was within the upper and lower range place it back on the conveyor.***
5. ***Remember the average weight of the last 5 dough pieces and determine if a scaling adjustment is required.***

The reason Mr. Siegel purchased the Dough Saver was simple **"The operator could not keep up".** The Dough Saver increased the plant yield by 8% the first year. He knew how to increase yield and control ingredient costs before the Dough Saver, **he only needed the right tool**.

...increased product yield by 7-8 percent by installing Dough Saver!
- Andrew Siegel—Bakery Owner, When Pigs Fly

The average package weight plus bake out loss equals the perfect divider weight for maximizing yield and reducing ingredient cost!

Start enjoying the benefits of more consistent scaling, less product waste, increased product yield, limited operator intervention and tighter process control.

Bakery Systems, Inc. · 5404 Jedmed Court, Saint Louis, MO 63129 · Office (314) 845-7778 · FAX (314) 845-7779