

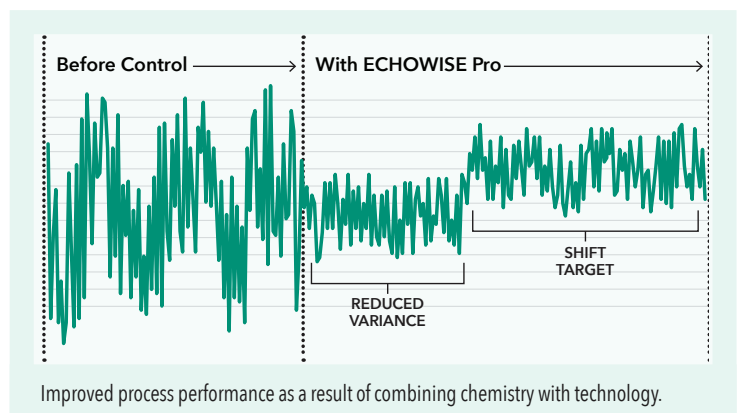
**MORE CONTROL.  
LESS INTRUSION.**

## Get superior process control with Ackumen<sup>TM</sup> ECHOWISE<sup>®</sup> Pro, the revolutionary non-invasive technology from Buckman.

To optimize your process for peak performance you need insight into the process. ECHOWISE Pro provides that insight to allow for reliable advanced process control and superior performance. An exclusive from Buckman and a first for the pulp and paper industry, ECHOWISE Pro uses sound waves to precisely control entrained air so you can optimize your pulp and paper making operations.

ECHOWISE Pro provides a continuous stream of data, allowing the process to be adjusted proactively. This allows Buckman to partner with you to remove the highs and lows associated with process instability. With that kind of control, your mill can reach new heights in a variety of areas from pulp cleanliness to paper machine efficiency.

Buckman combines ECHOWISE Pro with industry-leading chemistries and problem-solving expertise to create a control system that can dramatically improve how you make pulp and paper.



**SOUND  
WAVES.  
SOUND  
DATA.**

## Ackumen™ ECHOWISE® Pro stays on the outside, measures what's on the inside.

### FOR PULP:

**Improve cleanliness, reduce variability, and save money.**

With the Buckman defoamer program featuring ECHOWISE Pro, you get a continuous stream of information in real time so you can optimize pulp cleanliness and washing efficiency in real time.

- Reduce bleach costs
- Reduce chemical costs on the paper machine
- Reduce soda makeup
- Reduce water usage and energy costs for evaporation
- Increase production rate
- Reduce silicone carryover
- Increase O<sub>2</sub> delignification efficiency

### FOR PAPER:

**Improve paper machine performance.**

Our advanced defoamer program featuring ECHOWISE Pro can bring a new level of efficiency to your papermaking operation. Your mill can:

- Reduce variability at the wet end and in the forming section
- Improve drainage and decrease steam consumption
- Reduce breaks and improve runnability
- Decrease pinholes in the sheet
- Improve sizing

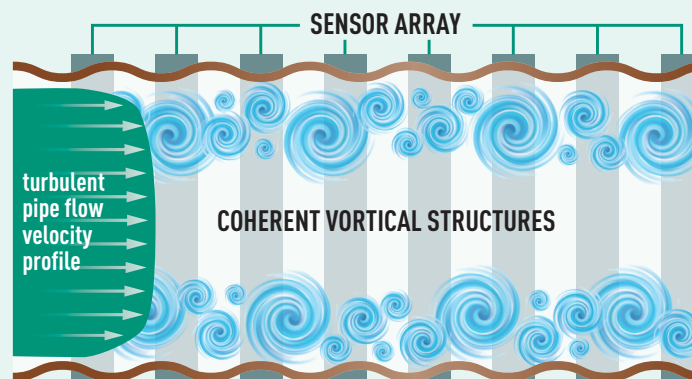
### HOW IT WORKS:

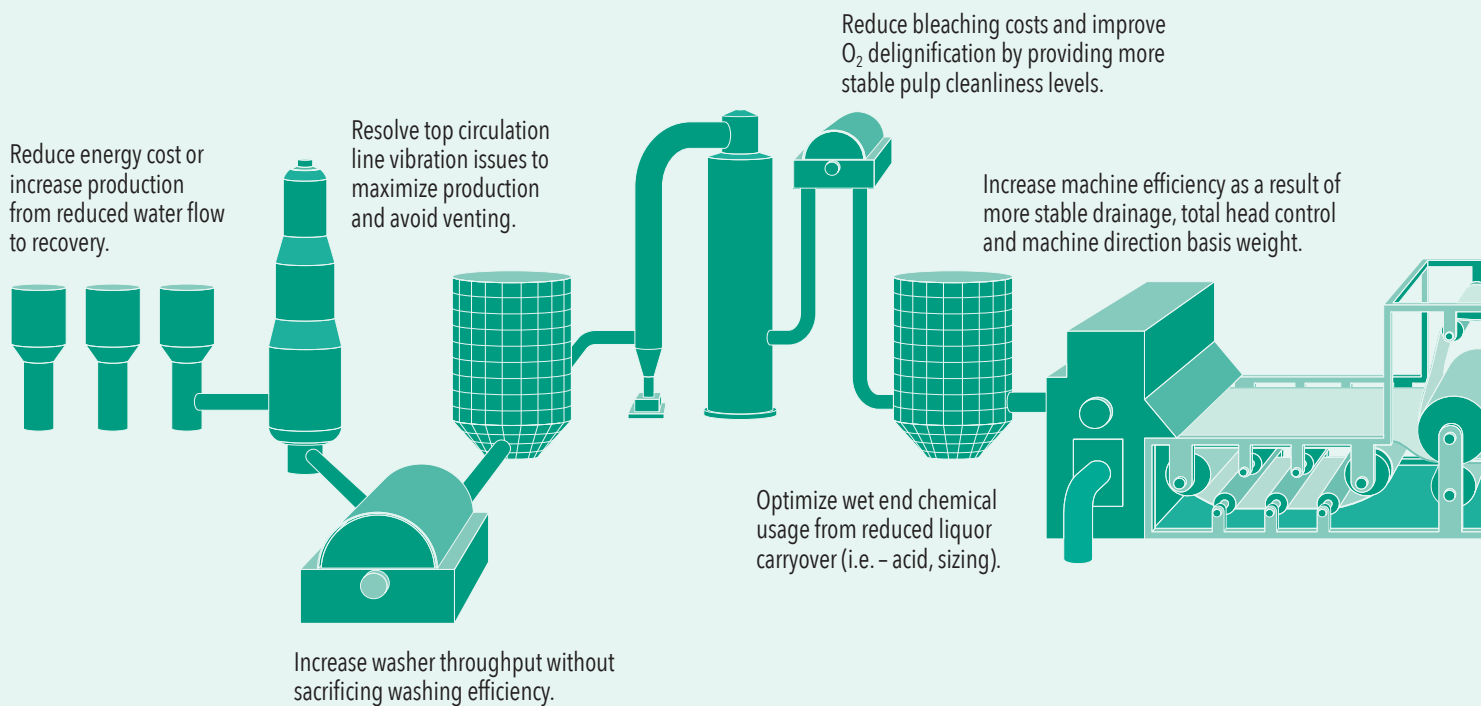
ECHOWISE Pro features an innovative, non-invasive design without moving parts or direct exposure to process fluids.

Available in different sizes, it fits on the outside of any pipe, making installation easy. No maintenance is required.

The sensor uses sound waves to measure entrained air and then feeds a continuous stream of information to the DCS, which can then automatically adjust defoamer application levels for optimum results.

Because it is external and non-intrusive, it won't obstruct flow, cause pressure loss, or promote clogging the way conventional technologies can.





## There's an ECHOWISE® solution just right for your mill.

Buckman offers a range of monitoring solutions to give you the data you need to succeed, everywhere you need it.



### ECHOWISE 360

Clamp-on monitoring systems use sound wave technology for online, real-time measurement of entrained air.



### ECHOWISE 100

A small slip stream from the main process is sent to the unit for accurate entrained air measurement.



## Let's make some waves.

ECHOWISE Pro is specially designed to work in concert with Buckman's comprehensive pulp and paper technologies and mill-specific solutions to help you improve your processes, products and profitability.

Contact your Buckman representative or visit [buckman.com](http://buckman.com) for more information about ECHOWISE Pro.

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Seller warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions. Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including **NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE**. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty.

A1088H (05/26)

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