



## Filtration Helps Gelatin Manufacturer Minimize Maintenance Costs

### Location:

USA

### Challenge:

Reduce operator intervention, downtime and loss of valuable product

### Solution:

Replace an inefficient filtration system with an F-Series Tubular Backwash System to reduce costly maintenance and disposal costs, while reducing labor and lost product

### Results:

The F-Series system provided increased flexibility in flow, temperature and viscosity, and the assurance that unwanted particles would be removed without shutting the system down

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*-Jim Lago,  
Regional Sales Manager, Eaton*

### Background

What if the next time you take a spoonful of yogurt, eat a marshmallow or snack on gummy candy, you hear a crunching sound?

That might mean that something went terribly wrong during the manufacturing of those foods, which contain a substance called gelatin. Gelatin shouldn't be crunchy when it reaches your mouth, but did you know it starts out that way?

Gelatin is pure protein and a natural foodstuff. It's made from demineralized animal bones - all of which are approved for human consumption and contain the collagen protein that we use to manufacture gelatin.

Gelatin is commonly used as a gelling agent in food, pharmaceuticals, photography and cosmetic manufacturing. It is found in grocery store products like most gummy candy, as well as other products such as marshmallows, gelatin desserts, and some ice creams, dips, and yogurts. The manufacturing process of gelatin involves a complex series of steps, beginning with the washing and extracting of raw

materials before the critical filtration stage.

Filtration is an important part of the gelatin manufacturing process due to the high level of contaminants that can be present in the initial raw materials.

### Challenges

One of the world's leading suppliers of collagen and gelatin proteins for the food, nutrition and pharmaceutical industries was using a filtration system that included bag filters. While the system seemed to be working, it was far too labor intensive because the filters had to be changed too frequently.

These constant filter changes were resulting in soaring maintenance costs and increased downtime. The company was also experiencing product loss when a bag ripped or burst. Unfiltered product was flowing downstream and clogging up the system. When that happened, there was no efficient or easy way to remove the bag without losing an entire batch of product and the resulting production time. To address these issues, the company switched to cleanable



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cartridge filters, but found that they were not easy to clean or cost effective. These filters provided none of the benefits associated with automatic cleaning filters and turned out not to be a viable long-term solution for this application.

In addition, this application required a filtration system that could handle the challenges of variable process temperatures ranging anywhere from 70 to 160 degrees F. Dealing with a wide and variable range of viscosities plus varied flow and small micron impurity removal made this application a tough one to handle.

Too much product was still being lost, disposal costs were too high, and maintenance and labor costs needed to be reduced. The company eventually turned to Eaton for a solution.

## Solution

To help the customer achieve continuous filtration, lower maintenance costs and minimize product loss, Eaton recommended the F-Series tubular backwash filter system. It is specifically designed for liquid filtering applications that require unattended operation, maximum uptime, and solids removal. Its isolated top-to-bottom backwash flow ensures complete and efficient media cleaning while continuing to deliver filtered product downstream. Each tube is backwashed individually while the other tubes continue to filter.

The system was an ideal match for the customer's concerns, as the reusable, clean-in-place filter system eliminates the labor and waste concerns associated with typical bag or cartridge filter systems, which they had previously used.

Clean-in-place filters and backwashing filters basically clean themselves. No shut down for bag or cartridge removal is required, like with other systems. This helped the customer generate savings through the elimination of bags and cartridges. These systems don't require the purchase, handling, or storage of replacement bags and cartridges.

The customer added a 25-micron tri-cluster wedge wire element with backwashing diffuser to the F-Series filter they selected. Wedge wire elements accelerate cleaning and have 30 percent more filtering surface, making the clean-in-place process easier to accomplish. In addition, an anti-vibration feature to eliminate water hammer damage was added.

Selecting these options gave the customer cost effective enhancements that had predictable results and met their goal of 50-micron filtration for their finished product.

## Results

This F-Series five tube system provided increased flexibility in flow, temperature and viscosity, and the assurance that unwanted particles would be removed without shutting the system down. Other benefits included decreased labor and maintenance costs, less product loss, improved reliability and productivity.

The customer purchased two more systems to improve their operation and ultimately have a cost saving throughout.

"After the customer bought the first unit and saw the results, they never turned back," said Jim Lago, Eaton regional sales manager. "They decided that the investment was well worth it, and the re-orders speak for themselves."



## F-Series Tubular Backwashing Filter

For liquid filtering applications that require unattended operation, maximum uptime, and solids removal from 1 to 1,700 microns, the F-Series family of filter systems delivers unbeatable performance.

**North America**  
44 Apple Street  
Tinton Falls, NJ 07724  
Toll Free: 800 656-3344  
(North America only)  
Tel: +1 732 212-4700

**Europe/Africa/Middle East**  
Auf der Heide 2  
53947 Nettersheim, Germany  
Tel: +49 2486 809-0

Friedensstraße 41  
68804 Altlufsheim, Germany  
Tel: +49 6205 2094-0

An den Nahewiesen 24  
55450 Langenlonsheim, Germany  
Tel: +49 6704 204-0

**China**  
No. 3, Lane 280,  
Linhong Road  
Changning District, 200335  
Shanghai, P.R. China  
Tel: +86 21 5200-0099

**Singapore**  
4 Loyang Lane #04-01/02  
Singapore 508914  
Tel: +65 6825-1668

**Brazil**  
Av. Julia Gaioli, 474 – Bonsucesso  
07251-500 – Guarulhos, Brazil  
Tel: +55 11 2465-8822

**For more information, please  
email us at [filtration@eaton.com](mailto:filtration@eaton.com)  
or visit [www.eaton.com/filtration](http://www.eaton.com/filtration)**

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03-2016