



Tubular Filter Installation Case Study #1

Paper Mill - Pulp Slurry White Water Polishing For Water Re-Use

***Durco TE Tubular Filter Continuous Filtration System
6 Filter Tube Array With Slotted Filter Elements And Automatic Backwash Option***

Industry: Paper

Location: Northern Michigan, USA

Installation Date: April 1987

Process Flow: 1200 GPM @ 70 PSIG

More Information

Web: www.asmfab.com/Tubular-Filters.aspx

e-mail: filterengineering@asmfab.com

***Designed For Efficient &
Reliable Operation***

May 2008 - This **Durco** Tubular Filter Unit has faithfully handled 13,996,800,000 gallons of water since it was installed in early 1987.

If You were to put each filtered gallon into a one gallon can, it would create a stack of cans that would reach to the moon more than 11 times!

You just can't beat the reliable long-term value that a **Durco** brand filter brings to Your industrial operation.



Conserves Water - Saves Energy - Saves Chemicals – Approx. 30 Day Payback!

This **Durco TE Tubular Backwash Filter** is deployed at a large northern Michigan paper mill to enable efficient re-use of water from the pulp slurry stream. The 6 filter tubes are each outfitted with 0.006 inch slotted filter elements, with backwash diffuser assemblies installed in each filter element. The system is automated and designed to internally backwash on a preset rise in differential pressure of 15 PSIG. This system filters 1200 GPM, at an operating pressure of 60-70 PSIG, producing clarified white water suitable for re-use at the mill.



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Durco TE Series Tubular Filtration System With Automatic Backwash



This Durco TE Tubular Filter System with Automatic Backwash is consistently saving the paper mill 1200 GPM of fresh water that would otherwise need to be introduced into the papermaking process, as well as achieving significant energy savings and reducing consumption chemicals.

The unfiltered raw white water is removed from the pulp slurry at the wet end of the *Fourdrinier* paper machine, and undergoes multiple filtration steps before it can be reused. A Pre-filter step passes the raw white water through a device called a *Sav-All*. This separates out valuable cellulose fiber so it can be reclaimed to the *Fourdrinier* machine feed chest.

The Problem – After passing through the *Sav-All*, the white water still contains small amounts of fibers. Since these fibers have been mechanically and chemically treated to interlock and form a sheet a paper, they tend to form lumps and knots that can harm downstream systems like knock off showers that contain calibrated directional spray nozzles.

The Durco Solution - A Durco TE Tubular Filter ‘Polishing’ System efficiently removes the trace quantities of cellulose paper fibers from the pre-filtered white water stream. Typically, for shower system spray nozzle protection, the required filter retention is calculated by dividing the nozzle orifice size by a factor of 6. For example, for a 0.035 inch orifice a filter retention of 0.006 inches is required.

Durco Experience - Many years of empirical testing have proven that slotted filter elements perform best in fiber-laden water filtration applications. In comparison, wire mesh filters (that have a weave of fine stainless steel wires) tend to cause the fibers to ‘staple’ to the mesh, making their removal from the filter elements extremely difficult. The smooth surface of the slotted tubular filter media avoids the stapling effect, and allows the tubular filters to be cleaned in place by manual or automatic backwashing.

More Benefits - By re-using process white water (typically at ~120°F) versus consuming fresh water (averaging about 50°F) significant energy savings are made due to avoiding the necessity to heat the relatively cold fresh water. Additionally, the process white water also retains in solution many of the special chemical additives required to enhance the formation of the paper sheet on the *Fourdrinier* machine - decreasing the chemical cost of the operation.

***In A Typical Paper Mill Application, With A Fourdrinier Machine Or A Cylinder Type Machine, A Durco Tubular Backwash Filter System Can Often Provide A Full ROI In As Little As 30 Days Of Operation! - Contact Durco Filtration To Find Out More
Call 716-693-9882 ext.216 or e-mail filtersales@asmfab.com***