



PULP & PAPER

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# ADVANCED MEMBRANE FILTRATION TECHNOLOGY

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We're making the world safer,  
healthier & more productive.



**PCI Membranes**  
Filtration Group®

The forest products industry produces high volumes of effluent and uses large amounts of water in the processing of pulp and paper. For more than 50 years, PCI has developed innovative solutions using tubular membrane technology to meet increasingly stringent industry and environmental requirements.

#### Tubular membrane applications include:

- Reduction of COD from pulp bleaching effluent with Ultrafiltration
- Fractionation of lignosulphonates
- Recovery & reuse of whitewaters and coating chemicals from paper production or cellulose nano-crystals and similar cellulose-based products

#### Pulp & Paper Tubular Membrane Effluent Treatment Processing

Environmental regulations require companies to cut effluent volumes. With increasing global awareness to protect the environment, economics play an essential role. Discharge costs for wastewater disposal and landfill sludge generated from traditional wastewater treatment systems are increasing. A zero waste, environmentally neutral plant can be established by incorporating Tubular Membrane Effluent Treatment

#### The B1 Module provides robust housing for Ultrafiltration, Nanofiltration and Reverse Osmosis that can be fitted with a wide range of fully interchangeable membrane elements.

Engineered with stainless steel, 12.5 mm diameter tubular membranes are fitted into 18 perforated support tubes. The B1 Series Module includes:

- Proven membranes for multiple applications
- Compact module design for quick and easy plant construction
- Tubular module requires minimal prefiltration and is suited to liquids and high levels of suspended solids

#### DID YOU KNOW:

*For more than 50 years, PCI Membranes has set the standard for engineering capabilities, high quality products, reliability and solution-led approaches.*



## A PULP & PAPER CASE STUDY

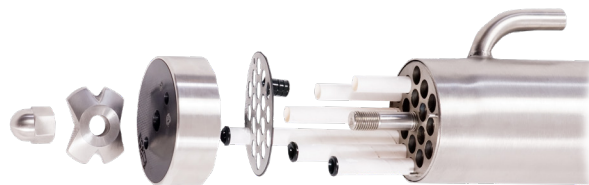
### Stora Enso Paper AB, Nymölla Mill, Sweden

One of the world's largest manufacturers of bleached magnifite pulp has a capacity of 300,000 tonnes per year and the majority is used by Stora Nymölla to manufacture high quality printing paper. Due to stricter environmental requirements, Stora Nymölla needed to obtain the 'Swan' mark indicating a commitment to protecting the environment by reducing COD emissions. They set a goal to reduce COD emissions by 50%.

Stora Nymölla worked with MoDo Chemetics who contacted PCI to carry out trials and design a plant that would minimise energy consumption. PCI completed 1,000 hours of trial work, developed a new membrane in two months and designed a plant that successfully processes 300m<sup>3</sup>/hr of bleach effluent. Since 1995, the plant has met the required specifications for COD reduction, membrane life has been longer than forecast and Stora Nymölla achieved the Swan mark.

### Ultrafiltration (UF)

UF is a membrane filtration method that removes many types of large molecules and ions from solutions by applying pressure to the solution when it is on one side of a selective membrane. The result is the solute is retained on the pressurized side of the membrane and the pure solvent is allowed to pass to the other side.



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### TUBULAR MEMBRANE EFFLUENT PROCESSING SYSTEMS ARE UNIQUE DESIGNED TO MEET SPECIFIC SITE DEMANDS INCLUDING FLUCTUATIONS IN VOLUMES & COMPOSITION

- 1 x 18** Series Flow (RO) Arrangement has channels cast in the endcaps connecting all 18 tubes in the series
- 2 x 9** Twin Entry (UF) Arrangement designed for viscous materials with an alternative end-cap which provides two parallel channels for all 9 tubes in the series
- 18 x 1** Parallel Flow (UF) Arrangement is designed for lower viscous materials & lower energy consumption



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## ADDRESS

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