

Purifying River Water for Board Manufacture with DynaSand®

A Wastewater Case Study

Project Profile

Objective

Iggesund Paperboard needed to set up a treatment process on site to ensure a continuous supply of high quality water for its board manufacturing plant. The treatment process needed to be able to handle large volumes in a small footprint.

Solution

To install 28 DynaSand® Filters and a Lamella® Plate Clarifier which result in raw water being filtered through the DynaSand® Filters before it enters the board mill. The backwash water is passed through the Lamella® Clarifier to remove the solids before it is returned and mixed with the raw water supply.

IGGESUND Paperboard uses some 22 megalitres of raw water per day in the manufacture of 260,000 tonnes of folding boxboard at its Workington plant. To ensure the continuity of a high quality water supply, Iggesund decided to manage the treatment on its own site, using DynaSand® filtration plant from Hydro International to automatically handle the large volumes within a very small footprint and requiring minimal supervision.

Alan Brown, Contracts & Supply Manager at Iggesund explains: "The source of process water is the River Derwent, which is a typical spate river; at low flow levels it's pretty clean but, in spate it carries high amounts of suspended solids. Our objective is to have water approaching potable quality all year round, and DynaSand® units and Lamella® Plate Clarifier from Hydro have consistently and successfully delivered that since their commissioning in the spring of 2006, with minimal maintenance requirements".

"The river water is extracted by a utilities company from the river and pumped to large underground reservoirs. It then flows under gravity to the mill where the underground pipeline passes close to our wastewater plant, so it made sense to locate the raw water treatment plant there. Although the project required major civil work including cutting back into the hill side, the vertical configuration of the DynaSand® enabled us to locate all 28 units plus the Lamella® Plate Clarifier and dosing equipment there."

"The process takes the raw water, doses it with a PAC flocculant, which enables the DynaSand® units, operating in parallel, to filter out the suspended solids. pH is corrected and a small dose of hydrochlorite sterilises the water before it enters the board mill. The backwash water from the filter is passed through a lamella® clarifier to remove the solids before this flow is returned and mixed with the raw water supply.

Product Profile

DynaSand® Filter

- No first filtrate. Always clean effluent.
- No shock loads on the wash water treatment system.
- Handles high suspended solids without the need for pretreatment.

Lamella® Plate Clarifier

- Space requirement can be reduced by up to 90% when compared with a settlement tank.
- Patented flow control system.
- High reliability

Find out more at: www.hydro-int.com



Installed DynaSand® Filters and Lamella® Plate Clarifier

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Alan Brown - Contracts & Supply Manager

This ensures that only a minimal amount of the water is wasted through the process. Apart from topping up the chemicals there is very little intervention. The plant is automatic/PLC controlled, and this enabled us to locate a remote control station in the existing control room for the waste water treatment operator.”

Technical Notes on DynaSand® Filter from Hydro

The DynaSand® units have been in operation in Europe for forty years. There are over 30,000 units installed worldwide and the technology is universally accepted as robust, reliable and versatile. With correct operation the Dynasand® has low maintenance requirements and negligible sand loss.

Applications include:

- Continuous contact filtration for process water and drinking water plants.
- Process water recycling to reduce water consumption through a water treatment plant.
- Tertiary filtration for final treatment and polishing of wastewater.
- Phosphorus removal minimising algal growth in the discharge water.
- Precipitation of the metallic ions, metal bearing industrial effluents.

The principal advantage is the continuous backwash facility negating the need for backwash pumps, tanks and downtime.

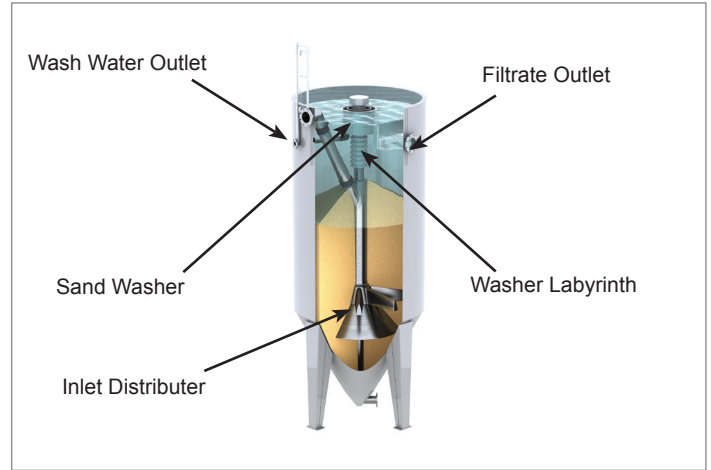
Technical Notes on Lamella® Separation from Hydro

Proven over many years in Europe, Lamella® separation has remained a slightly specialised solution in the UK, but its combination of compact dimensions and simplicity with low maintenance and power requirements is prompting a review of its benefits.

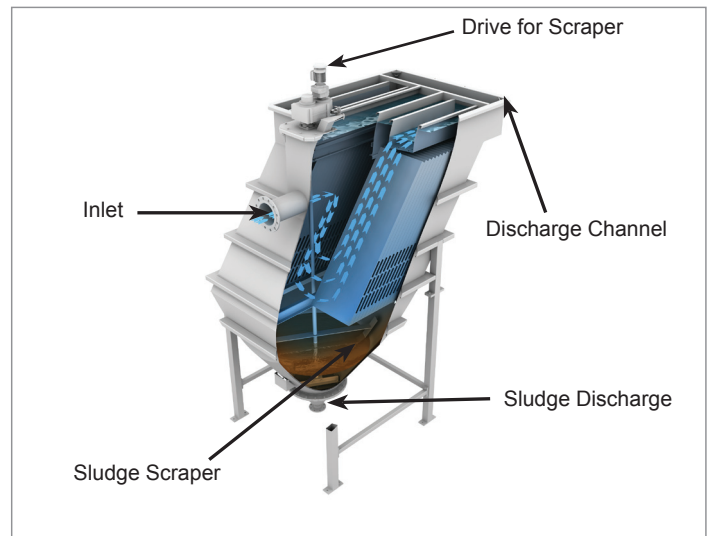
Very versatile, applications include:

- Potable water clarification.
- Primary settlement of screened sewage.
- Secondary settlement of biologically treated sewage.
- Backwash Water Recovery from treatment such as sand filter and industrial effluent clarification.

The primary advantage is that it offers operators high performance clarification of water in around one fifth to one tenth of the space occupied by an equivalent settling tank. With a flow rate of 180 m³/hr, a separator with a footprint of 2.9 by 4.4 m contains 120 m² of settling area.



DynaSand® Filter



Lamella® Plate Clarifier

HX is Hydro Experience, it is the essence of Hydro; a stamp of quality and a mark of our commitment.
 For further information call us on: 01353 645700
 or visit www.hydro-int.com

