

# LAMELLA

*by Nordic Water*

Lamella plate separation



-optimal sedimentation on a  
minimal footprint

**NORDIC WATER**

The Lamella Separator by Nordic Water is the world's leading inclined plate settler, initially developed at the Johnson Institute in Sweden in the early 1970-ies. The Lamella Separator is designed to maximise settling efficiency with minimal footprint. Its success is due to a number of factors, such as the unique flow control system, which represents a breakthrough in modern plate separator design and has contributed significantly to the excellent reliability and efficiency of the Lamella by Nordic Water.

## Designed to perform

Lamella Separators provide excellent separation and clarification performance in a wide variety of water treatment applications, such as:

### MUNICIPAL APPLICATIONS – WATER AND WASTE WATER

- Pre-water treatment
- Backwash Water Treatment
- Primary and secondary settling
- Tertiary Treatment
- Sludge thickening

### INDUSTRIAL APPLICATIONS

- Industrial Process water
- Chemical industry – purification and thickening
- Pulp & paper industry
- Iron & steel industry, mill scale removal
- Metal finishing – treatment of metal surfaces
- Metal Hydroxide Wastewater
- Pressure / vacuum Filtrate Clarification
- Purification in biological cleaning processes
- Recirculation of water in the potato and vegetable industry
- Treatment of water in power plant dust scrubbers
- ...and many more, where solids must be separated from fluids by sedimentation



## MATERIALS AND BUILDING DIMENSIONS

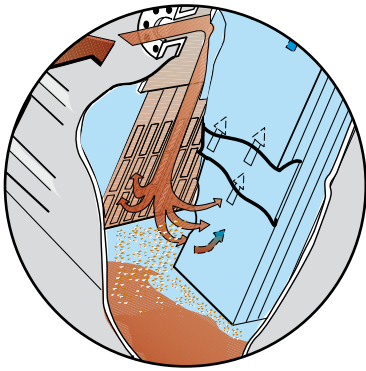
In order to comply with different site requirements and corrosive environments, the Lamella Separators are made from different materials, and in standard or customized sizes. We have delivered installations for flow rates ranging from 2 m<sup>3</sup>/h to 40,000 m<sup>3</sup>/h and free standing units up to 165 m<sup>2</sup> effective area with only 15 m<sup>2</sup> footprint.

Free standing units:

- Stainless steel: up to 165 m<sup>2</sup> settling area
- FRP: up to 100 m<sup>2</sup> settling area

Lamella plate packs for installation in basins:

- Stainless steel or FRP for any flow required

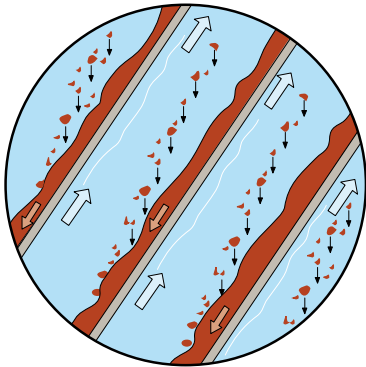


## Lamella models for maximum flexibility

The Lamella Separator is available in several versions as free standing models or plate packs in different sizes and plate distances. All models can be customized for various needs. Whether used in a concrete basin or steel tanks, equipped with a sludge scraper or combined with a flocculation tank, the Lamella separator will meet your process and application requirements. It is easy to install and with the few moving parts the operating and maintenance costs are very low.

### Uninterrupted settling

By allowing the liquid to enter the plate assembly through the side, rather than underneath, the settled material is not disturbed.

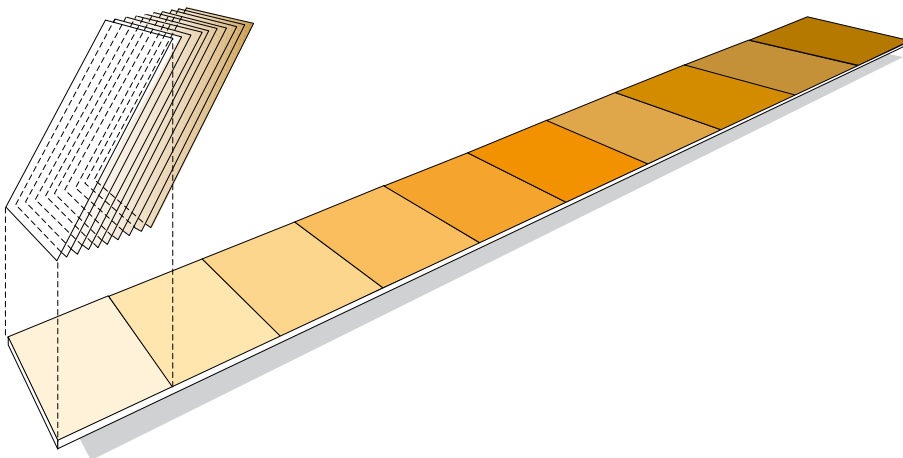


### Enhanced Separation

The well proven flow control feature and excellent hydraulic design ensure equal flow distribution over the lamella plates to enhance separation.

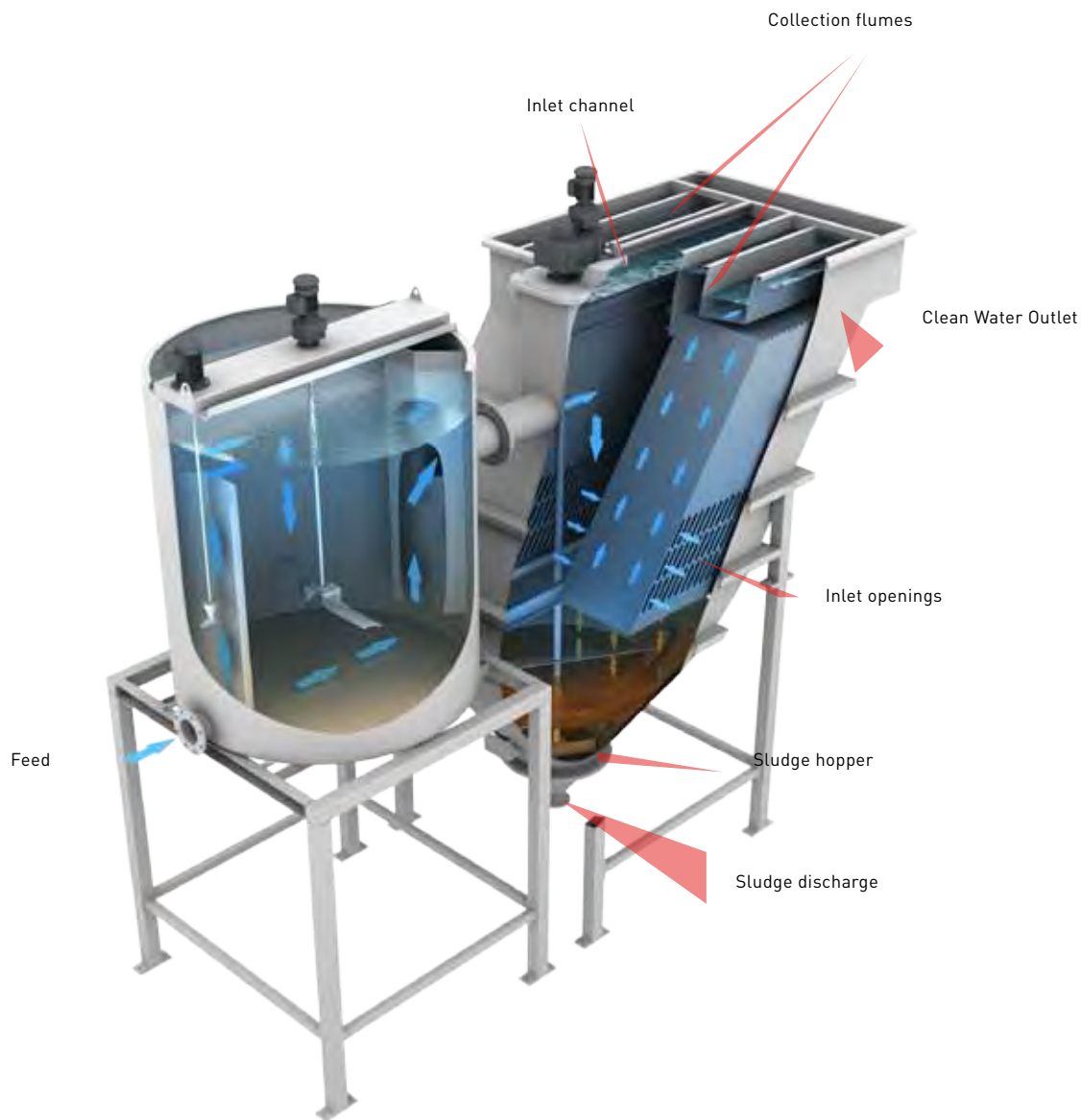
### High capacity on a minimal building area

The Lamella Separator can reduce the footprint to as little as 10% of a traditional settling tank. Ideal for expanding capacity in existing plants or whenever space is scarce or costly.



## Free standing models

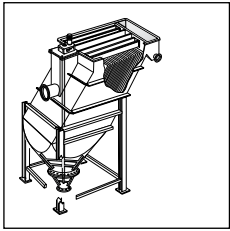
All free standing models can optionally be equipped with one or more flocculation tank(s) with agitator and rapid mixer to improve flocculation and sedimentation.



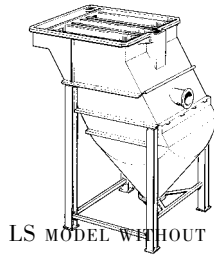
The feed enters the unit through the feed pipe and flows through the inlet chamber in the centre of the unit and in between the plates through openings in the sidewall. As the liquid flows upward between the plates, the solids settle on the inclined, parallel plates and slide into the sludge hopper at the bottom of the unit. In the hopper, the sludge is thickened prior to discharge through the sludge outlet. The clarified liquid leaves the plate assembly through openings at the top and is discharged into collection channels leading to the clarified water outlet. The even distribution of the flow to each plate ensures optimal operation at a high capacity. The side entry of the fluid prevents the solids that have settled from being carried away with the entering fluid.

## LS – Lamella Settler

The LS model is available in a number of standard sizes. It consists of a Lamella Plate Separator and a conical sludge hopper in a single tank. The sludge is removed via hydrostatic pressure by opening a valve. Optional items include flocculation tanks with mixer and agitator. The hopper can optionally be equipped with a rotating sludge scraper.



LS MODEL EQUIPPED WITH A SLUDGE SCRAPER



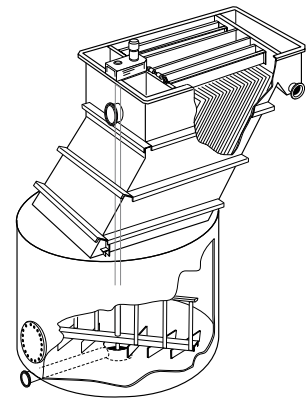
LS MODEL WITHOUT SLUDGE SCRAPER



MODELL LS IS A SEPARATOR WITH SLUDGE THICKENING BOTTOM HOPPER

## LT – Lamella Thickener

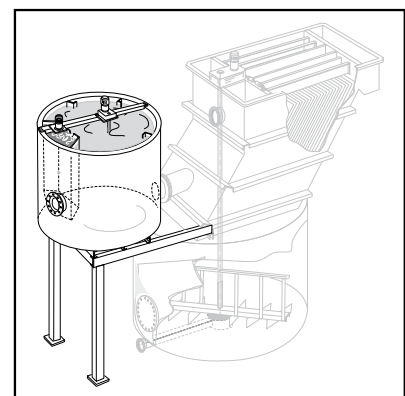
The Lamella Tank model is available in several standard sizes. It is supplied with a sludge thickening tank equipped with a rotating sludge scraper. The tank volume is higher than the hopper. These units are designed for flows and applications with high solids content and thickened underflow. Optional items include a flocculation tank with mixers.



LT MODEL PLATE SEPARATOR.

### Flocculation tank

Both models (LS and LT) can be equipped with a flocculation tank with an agitator. The tank can be equipped with a rapid flash mixer for good mixing of the flocculation agents.



LT WITH FLOCCULATION TANK.



THE JOHNSON LAMELLA SEPARATOR AND DYNASAND-FILTER – A COMPLETE RANGE OF WATER AND EFFLUENT PRODUCTS.



Installation of 6 flocc tanks of 19 m<sup>2</sup> each in the UK

## Plate Packs

The LP and LPS models are plate packs ready for installation in tanks or basins. These plate packs are mainly used in large plants but may be installed successfully also in smaller plants. The LP and LPS models offer significant cost savings and are particularly well suited for retrofitting to increase the capacity in existing basins. The Plate Packs are ideally combined with a Zickert Bottom Sludge Scraper.

### LP – Lamella Plate Pack Assembly

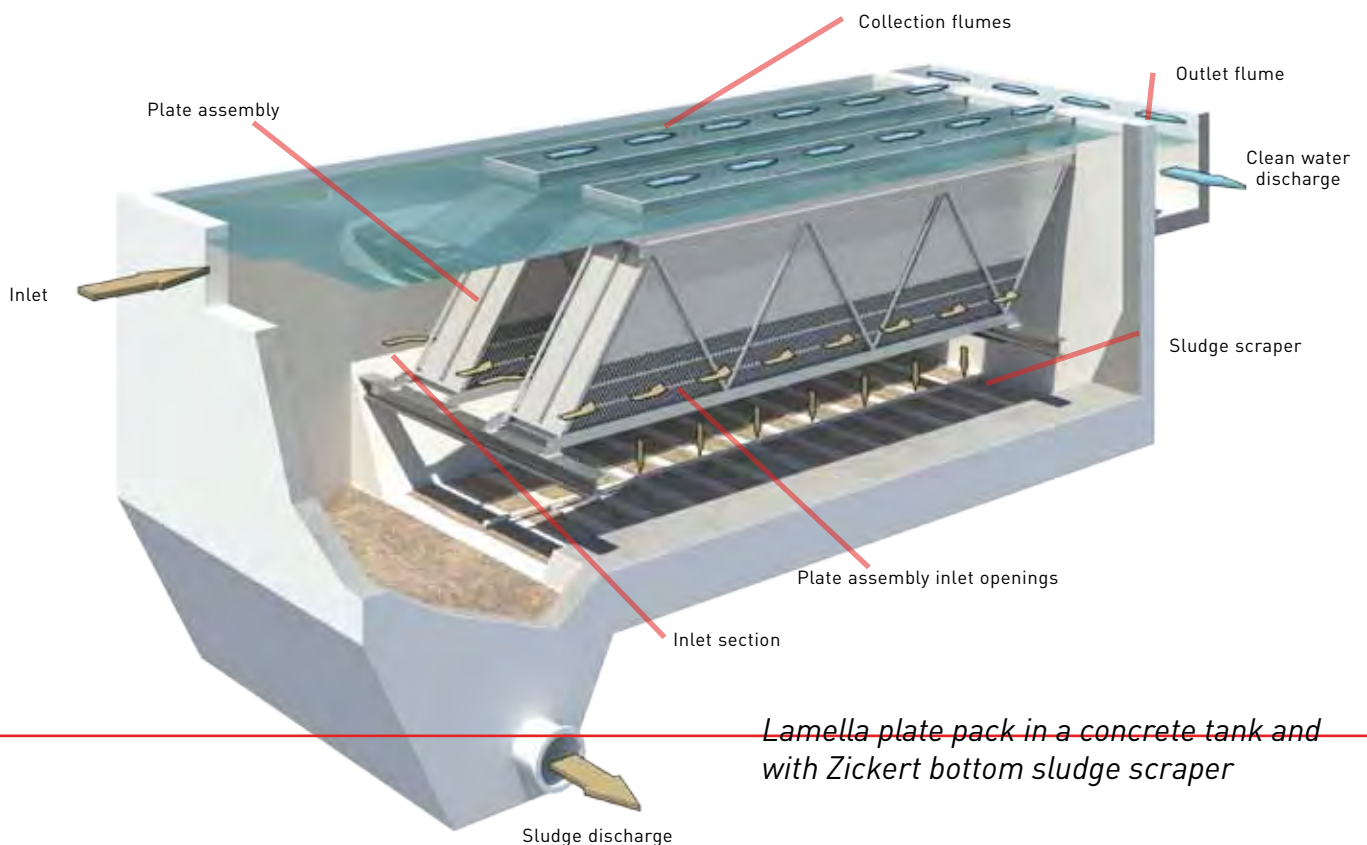
The LP model comes in several standard sizes. The Lamella Plate Packs feature fully submerged plates with a central collection flume. Flumes come with v-notch weirs and the option of embedment flumes. The versatile LP model is easily fitted into most sedimentation basins, and is well suited for waste water treatment.

### LPS – Lamella Plate Pack Assembly with Side Flumes

The LPS model has flumes located on the sides of the plates and incorporates v-notch weirs. The plates extend above the water surface and are individually removable. This solution is a very cost-effective per square foot of projected area, and is especially well suited for drinking water treatment.



*The clarified water collected in the V-notch weirs is transported to the outlet flume*



*Lamella plate pack in a concrete tank and with Zickert bottom sludge scraper*

## Zickert Bottom Sludge Scraper

The Zickert Sludge Scraper is ideal for installation underneath lamella packs due to its very low profile. It is specially designed for continuous sludge thickening and removal without disturbing the sludge blanket or interrupting the sedimentation process. Since it is fully customized to meet varying tank widths, lengths and geometry, it can be adapted to meet widely varying needs for municipal and industrial applications. More information is available in the Zickert sales material and on our homepage.



INSTALLATION OF A TREATMENT PLANT CONSISTING OF A SPECIAL PLATE SEPARATOR AND DYNASAND FILTERS.



PLATE PACK ASSEMBLIES ARE SUPPLIED READY FOR INSTALLATION.



PLATE PACKS ARE ECONOMICALLY TRANSPORTED IN FLAT PACKS "IKEA-STYLE"



INSTALLATION COSTS ARE REDUCED BY MINIMAL HANDLING



EXPANSION OF LAMELLA PLATE PACKS AND ZICKERT SLUDGE SCRAPERS INSTALLATION IN FRANKLIN, U.S.A.

## Pilot unit and Sedimentation tests

We can offer simple sedimentation tests on site or in our laboratory to verify the settling ability and the requirements for dosage of coagulants or polyelectrolytes to improve settling speed or effluent quality. This normally provides good initial understanding and sizing information. We can also provide a pilot unit to conduct appropriate tests on site in order to identify the optimal equipment needs for the actual setup and environment.

Other products from Nordic Water:

DynaSand Filters

DynaDisc Disc Filters

Zickert Sludge Scrapers and basin equipment

Meva Screens and screenings treatment equipment

NCS Conveyor Systems

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