"Superior Solids Removal, Optimized Water Quality"

LAMELLA CLARIFIER

"Small in size - big in performance"

"Revolutionizing Water Treatment with Advanced Sedimentation Technology"

Efficient | Reliable | Compact

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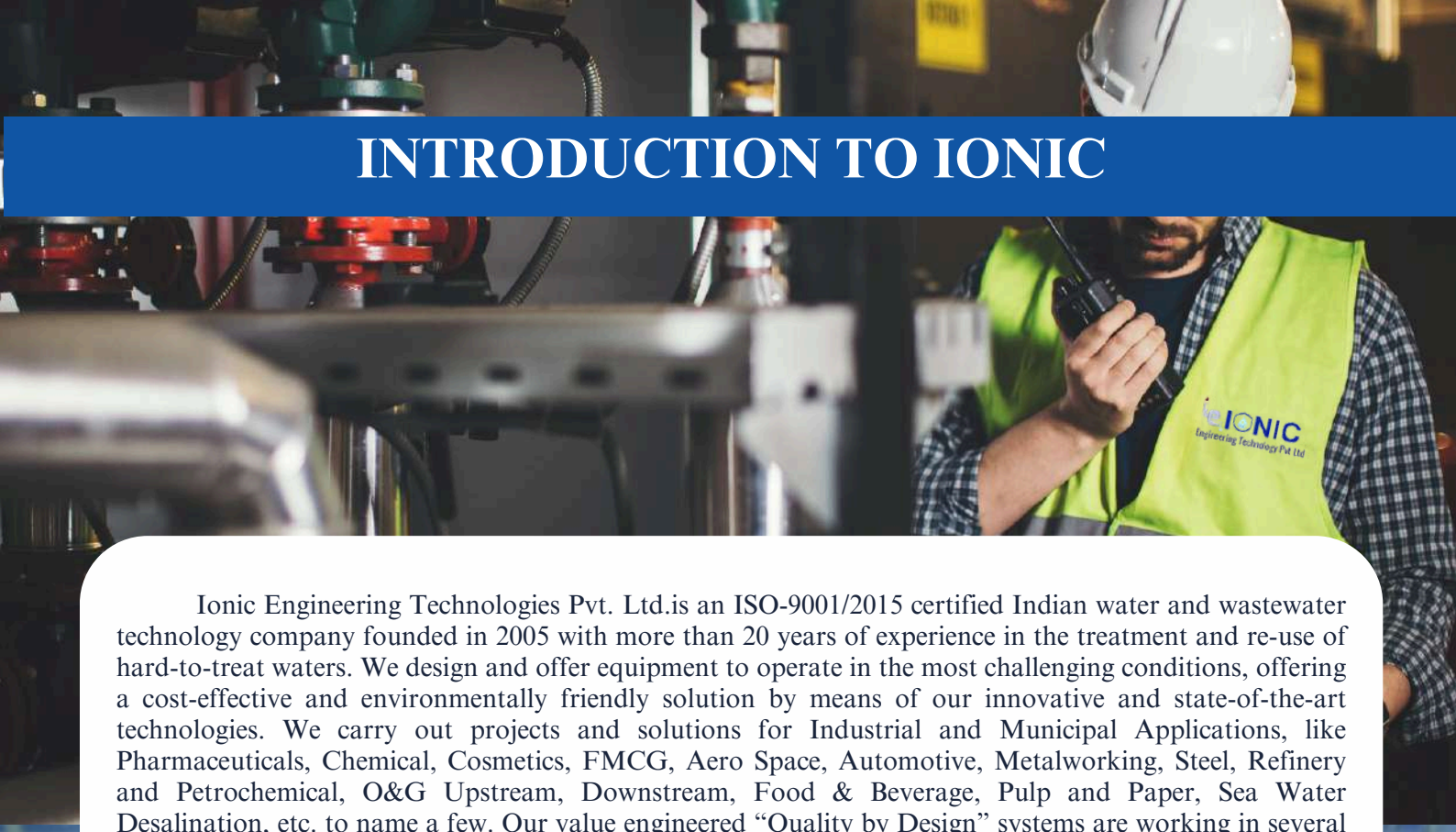
IONIC
Engineering Technology Pvt Ltd



INTRODUCTION TO IONIC

Ionic Engineering Technologies Pvt. Ltd.is an ISO-9001/2015 certified Indian water and wastewater technology company founded in 2005 with more than 20 years of experience in the treatment and re-use of hard-to-treat waters. We design and offer equipment to operate in the most challenging conditions, offering a cost-effective and environmentally friendly solution by means of our innovative and state-of-the-art technologies. We carry out projects and solutions for Industrial and Municipal Applications, like Pharmaceuticals, Chemical, Cosmetics, FMCG, Aero Space, Automotive, Metalworking, Steel, Refinery and Petrochemical, O&G Upstream, Downstream, Food & Beverage, Pulp and Paper, Sea Water Desalination, etc. to name a few. Our value engineered "Quality by Design" systems are working in several diverse industries for many years and is helping our customers move towards "Cleaner Production"

Motivation & Vision: Our main goal is to create value and make a difference for our clients and partners as well as deliver tailored-made solutions to satisfy the requirements of our clients, respecting the environment. At Ionic Engineering Technologies we believe that making water and wastewater reuse an affordable and sustainable water source is essential to the future development of mankind in terms of economy, environment, and society. All our systems are designed and engineered based on sound engineering practice and offer value for money and bring "Peace of Mind" to our customers.

Why Ionic? Good advice is half the battle won. Ionic Engineering is a technology neutral company and focused on providing "Quality by Design" engineered systems. We have technology associates based in Europe and USA for some of the cutting-edge disruptive technologies.The first step to the perfect water treatment solution: Understanding your wastewater analysis. We design the plant based on the water analysis sent by our customer.

We are dedicated to using our professional expertise accumulated over many years, to providing the solution you want, when you want it. We also take great pride in ensuring that every client is satisfied with the operating efficiency of the systems we design and the overall level of service that we provide, whether during the initial contract phase or later, throughout the life of the plant.

- Providing expert advice, tailored to meet your requirements.
- Supplying high quality, good value-for-money systems, and equipment.
- Supporting all our clients for the lifetime of their water & wastewater treatment systems.
- Developing and deploying the best, most economic solutions for your needs
- Listen to our customers as well as our suppliers on products and technologies feedback and updates.
- Continuous improvement in all that we do!

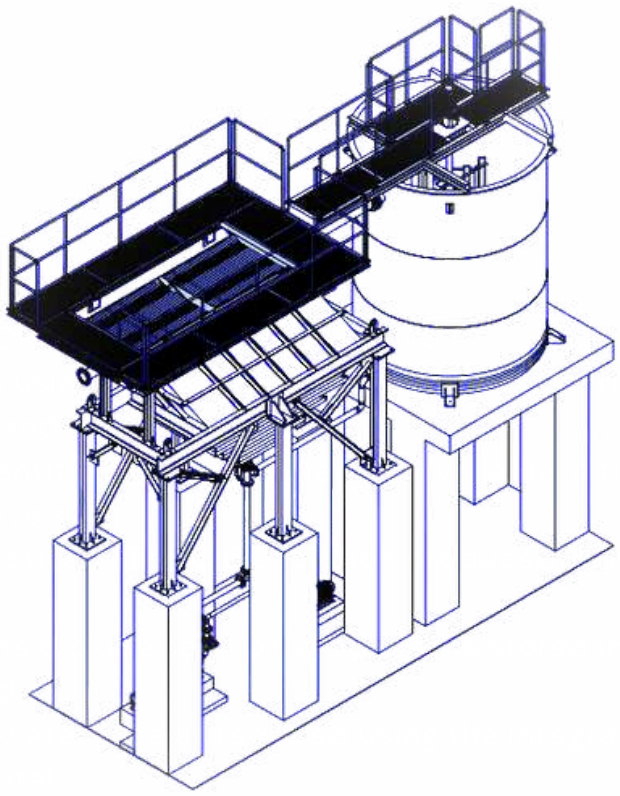
Find the best solution for your processes: Let our competent team from the application technology team advise you now! We look forward to hearing from you.

Customers: We have many reputed Multinational companies such as Unilever, Coca-Cola, Loreal, John Deere, Tata Hitachi, Bajaj, Tata Motors, Century rayon, GACL to name a few as our customers

Introduction to Ionic's Lamella Clarifier

"Maximize Separation Efficiency with Our Lamella Clarifier"

The **Ionic Lamella Clarifier** is engineered to deliver superior solids removal and water clarification, optimizing the sedimentation process for large-scale water treatment. By utilizing inclined, overlapping plates, this system creates laminar flow conditions that ensure hydraulic uniformity and high-quality effluent.



Designed for compact performance, the Lamella Clarifier significantly reduces the space required for traditional clarification equipment, offering an ideal solution for industries and municipalities with limited installation space. The compact nature of the clarifier allows it to be placed indoors, or relocated easily if necessary, making it a versatile and cost-effective choice.

The Lamella Clarifier system consists of a series of inclined overlapping plates that form multiple sedimentation chambers or cells between each adjacent plate. The additive projected area of the plates increases the surface settling capacity, thereby improving the sedimentation efficiency. The performance is proportional to the number of plates used, making it scalable and customizable to suit the specific needs of each application.

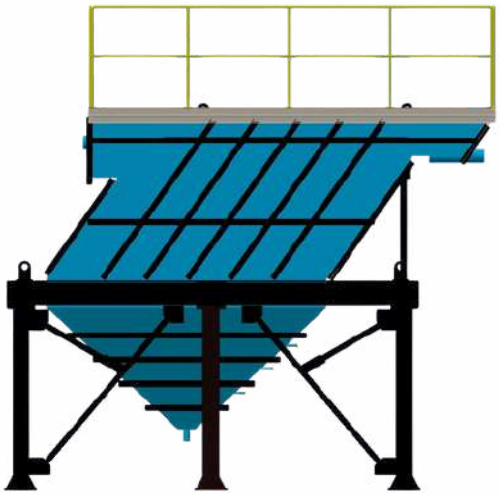
With the **Ionic Lamella Clarifier,** you can achieve optimal water quality with reduced space requirements, operational costs, and enhanced flexibility in installation and relocation.

Key Advantages of Ionic's Lamella Clarifier System

- **No Moving Parts:** Ensures a maintenance-free design, reducing mechanical failures and downtime.
- **Quick Start-Up and Stabilization:** The system stabilizes within 20 minutes, making it ideal for rapid deployment and immediate operation.
- **Continuous Operation:** Designed for uninterrupted performance over extended durations without requiring shutdowns.
- **Integrated Sludge Thickener Zone:** A four-sloped hopper bottom replaces the need for a separate thickening unit, streamlining the process.
- **Maximum Settling Efficiency:** Delivers maximum projected effective settling area (PESA) per m^2 of plate area due to superior hydraulic distribution and collection systems.
- **Durable, Corrosion-Resistant Plates:** Each plate is constructed from FRP material, offering excellent resistance to corrosion and wear.
- **Flexible and Easy Maintenance:** Individual plates can be easily removed and replaced by a single operator during maintenance, with no need for lifting arrangements or system shutdown.
- **Optimized Hydraulic Flow:** Internal feed ducts ensure uniform water flow across all plates, minimizing turbulence and enhancing sedimentation performance.
- **Adjustable Weir Plates:** Ensures even treated water collection, prevents short-circuiting, and maintains consistent effluent quality.
- **Compact, Space-Saving Design:** Requires minimal floor space and height clearances, making it suitable for confined installations
- **Self-Supporting Structure:** The tank and structural design support continuous operations and are compatible with walkways, ladders, and additional infrastructure.
- **Integrated Flash Mix and Flocculation Tank:** A pre-configured tank is bolt-connected to the Lamella unit, ensuring quick field installation and system efficiency.
- **Minimal Deposit Build-Up:** The system design prevents sediment accumulation, reducing cleaning frequency and ensuring long-term operational reliability.
- **Customizable Design:** Can be tailored to handle a wide range of flow rates and treatment capacities, ensuring versatility for various applications.
- **High Treatment Capacity:** Capable of handling high solids loads while maintaining superior effluent quality, making it ideal for municipal and industrial applications.

- **Flow Entry:**

In the Ionic lamella clarifier, flow enters form both sides of the lamella plate. This allows the feed flow to be equally proportioned, directed and distributed to all settling surfaces without impeding the movement of solids already settled. The inlet flow is divided and enters the lower part of each sedimentation cell from its two opposite sides. As the water is displaced upward in smooth, gentle flow, the suspended solids coalesce to form precipitates which settle in the chambers on the lower portion of each lamella plate influent water flows upwards over the plates. The deposited precipitates increase in size until they slide or roll down the inclined surface of the plates. This is then collected in the hopper provided at the bottom of the separator.



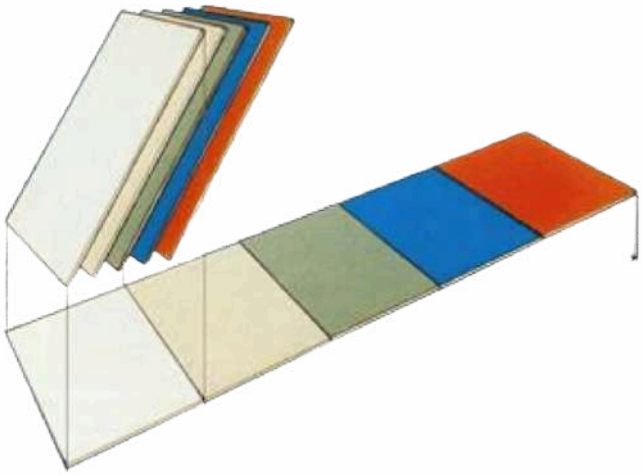
- **Weir Take Off:**

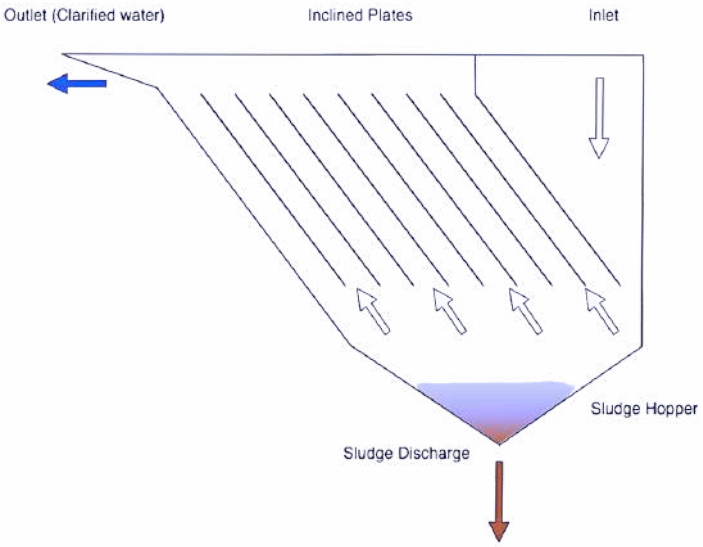
A weir plate with custom-sized orifice holes is used to provide more effective collection designs. The orifices are positioned so that each compartment bounded by a pair of plates is serviced by an orifice on each side. This results in more efficient hydraulic conditions and thus higher effluent quality. Near the top of each plate, clarified water leaves each cell through a pair of circular openings in the adjustable weir plate located along each side of the separator tank. The weir plate should be set horizontally in order to provide a design water level which is lower than the top of the tank.

- **Hopper Arrangement:**

Several options are available for sludge storage. The standard arrangement is a four sided, inverted pyramid, hopper bottom. A second option is to mount the lamella on top of a mechanical thickener in order to achieve a higher solids concentration, while at the same time providing a large liquid sludge storage volume. The sludge which is formed is periodically removed by opening the drain valve in the hopper bottom of the settling tank. Continuous sludge bleed off is recommended depending on the suspended solids load, in order to utilize the maximum volume of the settling zone effectively. Optionally during periods of low turbidity, part of the sludge formed is recycled back into the flash mix cum flocculation tank to increase efficiency of the system.

Working Operation of Ionic's Lamella Clarifier System





- **Principle of Operation**

The flash mix cum flocculation tank is divided internally into two compartments. Water to be treated is fed into the bottom of the flash/static mix compartment, where it is thoroughly mixed with chemicals. The partition plate dividing the tank allows the water to pass over to the flocculation compartment.

In the flocculation compartment, formation of flocs continues and flocculation is completed. Water containing the flocs passes into the Lamella Plate clarifier. The flow is divided after the water enters the Lamella at the lower part of each sedimentation cell, from its opposite sides. As the water moves upwards along the inclined plate, suspended solids coalesce to form precipitates which settle at the bottom of the plate. The clarified water continues to flow upward along the plate until it reaches the top of the plate and thereafter flows over the adjustable weird outlet onto the outlet of the Lamella System. The precipitate slides downward into the hopper bottom of the Lamella clarifier system, from where it is periodically removed for suitable disposal.

Features & Options: of Ionic's Lamella Clarifier System

- **Features :**
  - Standard Features:
  - Structural steel support legs.
  - 1/4" minimum tank wall thickness.
  - Epoxy painted carbon steel tank.
  - Individually removable FRP plates.
  - Adjustable effluent weir plates.
  - Standard units can be manufactured for flows from 2 to 75 m3/hr and above, in a single above grade tank.
  - One-piece prefabricated units are available with up to 1000 square ft. of effective settling area.
  - One-piece construction with integral flash mix/floc compartments for smaller units.

- **Available Options:**
  - Flash mix/flocculation tanks with mixers.
  - Full FRP or stainless steel construction.
  - Concrete tank designs.
  - Special coatings and plate materials.
  - Integral mechanical sludge thickener.
  - Access platform and ladder.
  - In-house laboratory analysis for equipment optimization.
  - Potable water design.
  - Gasketed and removable covers.
  - Automatic desludging.
  - Instrumentation and controls.
  - Chemical feed equipment.
  - Sludge handling and dewatering.
  - Pilot size units for on-site testing.

Standard Specifications, of Ionic's Lamella Clarifier System

- **Standard Specification**

A) Coatings
- Internally painted with Epoxy and externally with Red Oxide primer.
- Optional PU/Epoxy external coating.
- FRP coating can be provided internally at an additional cost.

B) Structural Features
- Supplied with ladder, platform, and supporting structures for ease of access and safety.

C) Material of Construction
- Standard: Mild Steel (MS).
- Optional: Stainless Steel (SS) or PP-H for specific applications.

D) Mixing and Flocculation
- Static/Flash Mixing and Flocculation Tank available as separate units.

E) Accessories
- Includes sampling valves and manual sludge line valves as part of the standard scope.

F) Automation (Optional)
- Automatic timer-based desludging for enhanced operational efficiency.

G) Chemical Dosing (Optional)
- Provision for Coagulant and Polymer Chemical Dosing Station and flow measurement for improved process control.

Standard Models, of Ionic's Lamella Clarifier System

MODELS	ILPC-0725	IPLC-1140	IPLC-1760	IPLC-2380	IPLC-32110	ILPC-42150
Max. flow m3/hr	25	40	60	80	110	150
Treated Water Quality Turbidity (NTU) Suspended Solids (ppm)	< 25 <25	< 25 <25	< 25 <25	< 25 <25	< 25 <25	< 25 <25
Feed water quality	< 2000 ppm anionic load free from suspended solids @ < 40 deg C°					
Electrical data Supply – 415 V AC 3 Ø Power consumption	1.5-5.0 HP					
Note:- for higher flow rate and special applications pl. contact us with your specific requirements.						

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We're here to help you with all your water and wastewater treatment needs. Whether you're looking for customized solutions, technical support, or just want to explore how our services can benefit your business, feel free to reach out to us.

Our team of experts is ready to provide personalized assistance and ensure that you get the most effective and innovative solutions tailored to your requirements. You can contact us via phone, email, or through our website. We value every opportunity to collaborate and are committed to delivering excellence in every interaction.

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