



"Superior Solids Removal, Optimized Water Quality"

# Polymix

Poly Electrolyte preparation system

"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.

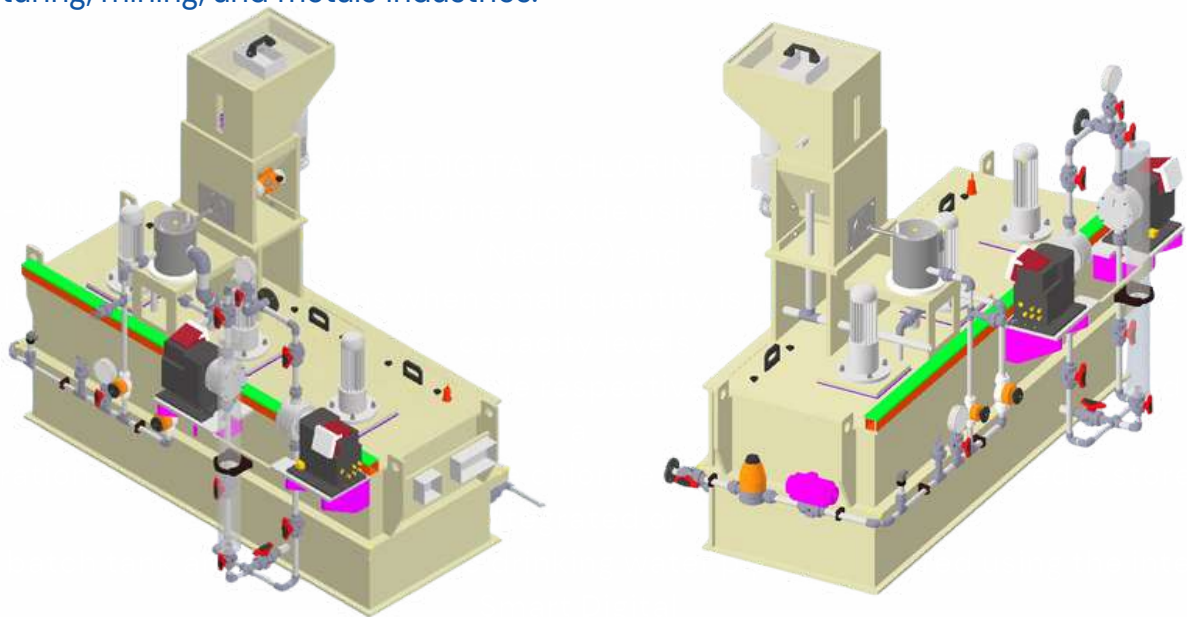
**Customers:** We have many reputed Multinational companies such as Unilever, Coca-Cola, L'Oréal, John Deere, Tata Hitachi, Bajaj, Tata Motors, Century rayon, GACL to name a few as our customers



# Introduction to Ionic's Polymix (Model - POLYMIX-BT)

## POLYMIX-BT-SD-M POLY ELECTROLYTE BATCH MANUAL PREPARATION SYSTEM

The Polymix-BT-SD is a manual batch-type preparation system for poly-electrolytes, designed for applications where synthetic polymers are used to create polymer solutions for flocculation. This system serves as a dissolving station, making it suitable for a wide range of process engineering applications, such as in water and wastewater treatment, paper manufacturing, mining, and metals industries.



Batching stations are ideal for manual preparation of PE solutions in batch operations. Key features of the standardized units include:

- Ideal for non-continuous operation
- Manual addition of flocculants in batch quantities
- Durable and robust design
- Cost-effective solution
- Batching tank constructed from high-quality PP-H
- Gentle mixing for consistent and improved performance
- □ Control system for stirrer, level switches and indication.

# Functional Description, of Ionic's Polymix (Model – POLYMIX-BT)

## Functional Description:

- **Units:** The **Polymix-BT** consists of the following components:
  - **Single-chamber storage tank** made of PP
  - **Float switch** with three levels
  - **Water pipework** with polymer wetting cone and mixing educator
  - **Slow-speed stirrer**
  - **Single-Chamber Storage Tank:**
    - The storage tank is a closed PP unit, equipped with a stirrer traverse, overflow, drainage, and polymer solution extraction connections. The tank's inspection opening is sealed with a securely screwable cover.
  - **Float Switch:**
    - The float switch features three contacts and floats, which monitor the liquid level in the storage tank. The switch includes maximum, minimum, and low-low level contacts.
  - **Water Pipework:**
    - The water pipework provides the system with the necessary poly-electrolyte dilution water. It includes the following components:
      - Regulating valves
      - Wetting cone
      - Injector
      - Rotameter
  - **Electric Stirrer:**
    - The **Polymix-BT** is equipped with an electric stirrer, operating at **750 rpm**.
- **Control System:**
  - The system is provided with a control panel featuring a DOL starter for the stirrer and indicator lamps for the level and stirrer operation.
- **System Function:**
  - The **Polymix-BT-SD** is a manual poly-electrolyte preparation system designed for the manual addition of dry powdered or liquid emulsion poly-electrolytes. Batch concentrations of up to **0.5%** can be produced. The maturing period of the prepared solution varies depending on the specific product but generally lasts around one hour.
  - The system is compact and requires only a power supply to the panel and dilution water at a pressure of **2–3.5 bar**.
  - A metering pump ( not included and need to be ordered separately) can be used to transport the finished polymer solution into the application.



# Functional Description to Ionic's Polymix (Model – POLYMIX-BT-DD-A)

## Functional Description

The **Polymix-BT-DD-A** system integrates components for powder storage, powder metering via a screw feeder, emulsion concentrate pump, wetting cone, ejector mixer, dissolving tank, and maturing tank into a single, compact unit.

Items Included in the **Polymix-BT-DD-A**:

- Dual-Chamber Storage Tank made of PP
- Level Transducer for upper and lower chambers with three level sensors
- Water Pipework with polymer wetting cone and mixing educator
- Slow-Speed Stirrer
- Screw Feeder for dry polymer powder metering
- Polymer Concentrate Pump for emulsion metering

## Double-Chamber Storage Tank

The storage tank is a closed, double-chamber design made from PP. It features a stirrer traverse, overflow, drainage, and polymer solution extraction connections. The inspection opening is secured with a tightly screwable cover, ensuring sufficient maturing time for the polymer solution. The division into two chambers prevents the mixing of matured and freshly prepared solutions, enabling a continuous supply of PE solution.

## Level Transducer

A level transducer monitors the liquid levels in the storage tank, incorporating maximum, minimum, and low-low level contacts. It provides full control over the polymer preparation process.

## Water Pipework

The water pipework supplies the required dilution water for the poly-electrolyte preparation. It includes:

1. Regulating valves

3. Rotameter

2. Injector

4. Wetting cone

5. Pressure regulator ensures water pressure is maintained at the desired level.

## Electric Stirrer

The Polymix-BT-DD-A is equipped with a slow-speed electric stirrer operating at **750 rpm**.

## Control system

A PLC based control system with DOL starter for stirrer and indication lamps for level and stirrer is provided. PLC also controls the screw feeder function and level monitoring.



# Functional Description to Ionic's Polymix (Model - POLYMIX-BT-DD-A)

## Function of the System

The **Polymix-BT-D-A** is a fully automatic poly-electrolyte preparation system engineered for the efficient handling of dry powdered or liquid emulsion-type poly-electrolytes. This system simplifies the preparation process by allowing poly-electrolytes to be added manually, enabling the production of batch concentrations of up to 0.5%. The prepared solution undergoes a maturing period, typically around one hour, depending on the specific polymer used.

Designed with a compact structure, the Polymix-BT-D-A minimizes installation requirements. It requires only a power connection to the control panel and dilution water supplied at a pressure of 2–3.5 bar. For convenience, the system includes a pump for dilution water as part of its standard scope of supply.

## Working Principle

- **Wetting Zone:** The powdered polymer is introduced into the wetting zone, where a partial flow of preparation water uniformly wets the polymer. This critical step ensures that clumping is avoided, maintaining the quality and consistency of the polymer solution.
- **Mixing and Suction:** A main flow of preparation water passes through a mixing device, creating a slight vacuum at the outlet of the wetting cone. This vacuum efficiently draws the wetted polymer powder into the preparation water stream, blending it thoroughly and effectively.
- **Polymer Solution Transport:** Once prepared, the polymer solution can be transported to the application point using a metering pump. While not included in the standard supply, the metering pump can be easily integrated into the system for seamless operation.

The Polymix-BT-D-A offers a reliable and efficient solution for the preparation of poly-electrolyte solutions, ensuring optimal performance across a variety of applications.

# Functional Description to Ionic's Polymix (Model - POLYMIX-3C-A- X)

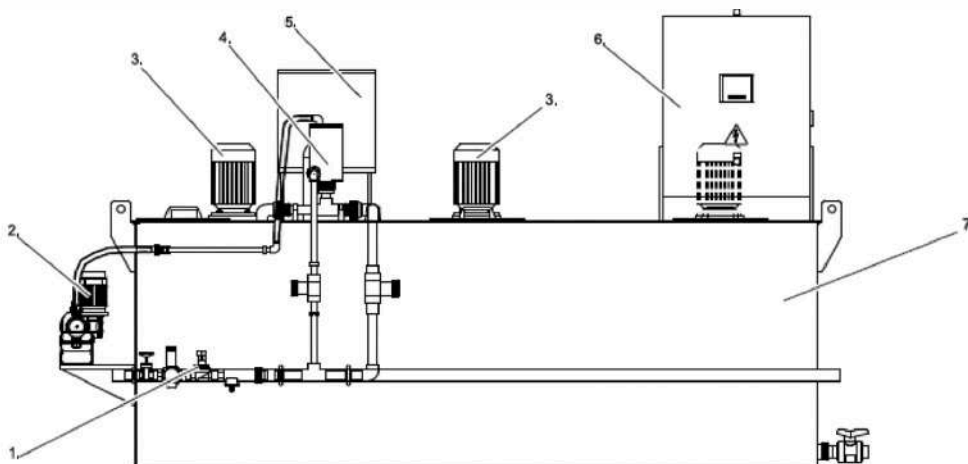
## THREE COMPARTMENT POWDERED POLY ELECTROLYTE SOLUTION PREPARATION SYSTEM

The Model **POLYMIX -3C-A- X** Ready-to-operate, three-compartment preparation system for powder polymer to a 0.05 to 0.5 percent solution. This means that batch concentrations up to 0.5% can be produced with correctly sized tank volumes. The prepared solution maturing period depends on the respective product, but is generally approximately 1 hour. Pl. consult us for recommendations based on your desired concentration range.

The system is designed as a compact system. Only power to the panel and dilution water at 2-3.5 bar is to be provided. For dilution water a pump is included as standard scope of supply.

The powdered polymer falls into the wetting zone, where it is uniformly wetted with a partial flow from the preparation water. This ensures clumping of the feed chemical does not occur. The main flow of the preparation water produces , by way of a mixing device , a slight vacuum at the outlet of the cone. Consequently , the wetted powder is sucked out and then travels with the preparation water.

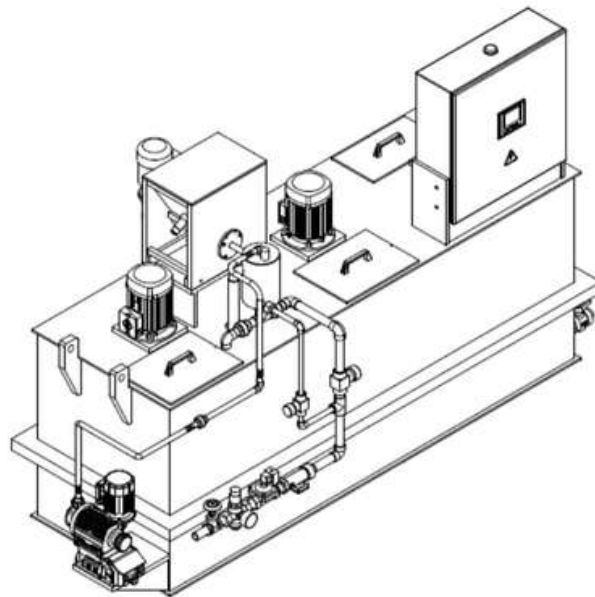
A metering pump ( not included and need to be ordered separately) can be used to transport the finished polymer solution into the application.



1. Water Fittings.
2. Concentration Pump.
3. Stirrers.
4. Flush Fitting.
5. Powder Feeder.
6. Control Cabinet.
7. Three Chamber Storage Tank.



# Functional Description to Ionic's Polymix (Model – POLYMIX-3C-A- X)



- **Baffled Three-Compartment Tank:** (1 unit), A 1500-liter aging and storage tank made of welded polypropylene for durability and chemical resistance.
- **Dry Feeder:** (1 unit) , Capacity of 50–100 kg/day, equipped with a 100-liter hopper, feeder discharge heating, and an automatic after-run preventer. The feeder is powered by an adjustable-speed motor for precise operation.
- **Dispersing System:** (1 unit) , Includes a wetting cone, eductor, flow meter, and valve set for efficient powder dispersing and wetting with dissolving water.
- **Electric Mixers:** (3 units), VFD-controlled electric mixers for optimal mixing performance and adaptability.
- **PLC-Based Control Panel:** (1 unit), Features a color touchscreen HMI for automatic system control and easy operation.
- **Remote On/Off with Feedback Signal:** (1 unit), Allows remote operation and transmits status signals. Closed contact indicates operation with no malfunctions; open contact signals stoppage or malfunction.
- **Overflow Sensor Alarm:** (1 unit), Provides alerts to prevent overflows.
- **RS 485 Communication Interface:** (1 unit), For integration with the Elixia panel, transmitting on/off status, final tank level, and alarm signals.
- **Lifting Lugs:** (4 units), for overhead crane handling (spreader bars required).



# GET IN TOUCH

WITH  
**IONIC ENGINEERING TECHNOLOGY PVT. LTD.**

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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