



**"Troubled Water = Absolutely Clear Choice"**

**TURBILOC®**

**ACTIVE MULTI MEDIA FILTER**



**"Revolutionizing water filtration  
with unmatched efficiency."**

**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.

# Introduction To TURBILOC®

Water is one of the most precious resources, and ensuring its purity is a priority across industries. Traditional sand filters often fall short of providing the clarity and efficiency modern industries demand. Enter **TURBILOC® Active Multi-Media Filters**, the revolutionary filtration solution designed to exceed expectations.

## About TURBILOC®

TURBILOC® is a highly engineered filtration system that:

- **Replaces Traditional Filters:** Directly replaces Pressure Sand Filters, Multi-Grade Filters, and Dual-Media Filters without additional infrastructure changes.
- **Doubles Performance:** Offers up to twice the efficiency of traditional systems in removing turbidity and total suspended solids (TSS).
- **Custom-Engineered Solutions:** Tailored to meet specific water characteristics and performance requirements, ensuring the best results for your unique application.

## Media Innovation

TURBILOC® media is based on a proprietary aluminosilicate catalytic material, processed using advanced physio-chemical techniques to optimize particle size, shape, and charge. This media:

- Resists biofouling, bio-coagulation, and transient channeling.
- Requires no replacement or recharging, making it cost-effective.

## Unique Features of TURBILOC®

- **Revolutionary Filtration Media:** TURBILOC® utilizes a proprietary 3-step activation process that increases the media's surface area by 300 times. This ensures superior adsorption and mechanical filtration performance. The media's electrostatic charge enhances its ability to capture sub-micron particles and dissolved organics, making it far more efficient than traditional filtration systems.
- **Built for Performance and Longevity:** TURBILOC® systems are engineered to deliver consistent performance throughout their lifespan without requiring media replacement. Its robust, multi-layered design prevents common issues such as wormhole channeling and untreated water bypass, ensuring reliable operation even in demanding applications.
- **Superior Backwash System :** The automated backwash system is designed to recharge the media efficiently, eliminating the need for air purging in most scenarios. By reducing backwash water demand by up to 50%, the system helps conserve water and energy while maintaining peak filtration efficiency.



# The Science Behind TURBILOC®

## Innovative Media Technology

### 1. Triple-Stage Activation:

- TURBILOC® media undergoes a proprietary activation process to increase its surface area by up to 300 times, enhancing adsorption capabilities.

### 2. Aluminosilicate Catalysts:

- The core material ensures mechanical strength, long-term durability, and unparalleled filtration performance.

### 3. Electrostatic Filtration:

- The negatively charged surface attracts and captures sub-micron particles, dissolved organics, and biofouling agents.

### 4. Hydrophobic Layer (TURBILOC®+):

- Reduces the need for chemical coagulants and flocculants while efficiently targeting oils, fats, and microplastics.

## Key Features and Design Excellence

### Comprehensive System Features

1. **Compact Design:** Optimized for space-saving installations.
2. **High Flow Rates:** Handles volumes up to 250 m<sup>3</sup>/h, suitable for industrial-scale applications.
3. **Automated Operations:** Smart controllers for filtration and backwash cycles minimize manual intervention.
4. **Enhanced Backwashing Efficiency:** Uses 50% less water compared to traditional systems.

### Unique Benefits

1. **Reduced SDI (Silt Density Index):** Ensures better pre-treatment for RO membranes, improving their lifespan.
2. **Non-Reactive Media:** Eliminates free silica, preventing downstream fouling.
3. **Environmentally Friendly:** Reduces chlorine oxidation demand and eliminates harmful by-products.

# Enhanced Applications of TURBILOC®

TURBILOC® systems redefine the filtration process, making them indispensable across various industries:

## Industrial Applications

- **Raw Water Treatment:** Ensures water quality meets industrial standards.
- **Reverse Osmosis Pre-Treatment:** Protects RO membranes by significantly reducing fouling.
- **Cooling Tower Side Stream Filtration:** Maintains system efficiency by removing suspended solids.

## Municipal Applications

- **Wastewater Tertiary Treatment:** Prepares treated water for reuse or safe discharge.
- **Drinking Water Purification:** Meets stringent regulatory standards for potable water.

## Specialized Applications

- **Seawater and Brackish Water Filtration:** Ideal for desalination plants.
- **Iron & Manganese Removal:** Effectively oxidizes and filters heavy metals.
- **Aquaculture:** Provides clean, safe water for aquatic life.

## Advanced Technology in Action

### Working Principle

#### 1. Filtration:

- Water passes through the multi-layer media bed, where particles, organic matter, and suspended solids are trapped.

#### 2. Oxidation Potential Zone:

- Metal oxide catalysts generate high oxidation zones that prevent microbial growth and biofouling.

#### 3. Backwashing:

- A reverse flow removes captured impurities, restoring the media to its original condition.

### Illustrative Diagram

- Full-page diagram showing water flow, particle capture, and backwashing mechanism.

# Performance | Sustainability | Cost Efficiency of TURBILOC®

## Performance Metrics

### Key Performance Indicators

Parameter	Inlet	Outlet	% Removal
TSS (ppm)	47	1.5	96.84%
Turbidity (NTU)	54.9	1.19	98.06%

## Advantages Over Traditional Filters

- **Better Particle Removal:** Removes up to 97% of 1-micron particles, far exceeding sand filters.
- **Longevity:** Media never requires replacement, offering a lifetime of service.

## Sustainability and Cost Efficiency

### Eco-Friendly Design

- 1.**Reduced Chemical Usage:** Hydrophobic media minimizes the need for coagulants and flocculants.
- 2.**Lower Water Waste:** Efficient backwash cycles reduce water loss by 50%.
- 3.**Energy Efficient:** Operates with minimal power requirements.

### Return on Investment (ROI)

- **TURBILOC® systems deliver a rapid ROI through:**
  - Lower operational costs.
  - Extended membrane life in downstream processes.



# Technical Specifications and Customization Options of TURBILOC®

MODEL	OP. FLOW RATE RANGE -(M3/H)	B/W FLOW RATE RANGE -(M3/H))	OPERATING PRESSURE (BAR)
TLF-01-350	0.5-2.0	4.5	2.0 – 5.0 bar
TLF-02-400	0.6-2.5	5.75	2.0 – 5.0 bar
TLF-03-600	1.5-5.5	13	2.0 – 5.0 bar
TLF-04-700	2.2-8.8	20	2.0 – 5.0 bar
TLF-05-900	3.2-12.75	29	2.0 – 5.0 bar
TLF-06-1000	4.0-15.7	35	2.0 – 5.0 bar
TLF-07-1200	5.65-22.6	51	2.0 – 5.0 bar
TLF-09-1400	7.7-31.0	69	2.0 – 5.0 bar
TLF-10-1600	10.0 -40.0	90	2.0 – 5.0 bar
TLF-11-1800	12.7-51	115	2.0 – 5.0 bar
TLF-12-2000	15.7-63	141	2.0 – 5.0 bar
TLF-13-2200	19.0-76.0	171	2.0 – 5.0 bar
TLF-14-2400	22.6-91	204	2.0 – 5.0 bar
TLF-15-2600	26.5-106	239	2.0 – 5.0 bar
TLF-16-2800	31.0-123.0	277	2.0 – 5.0 bar
TLF-17-3000	35.0-141.0	318	2.0 – 5.0 bar
TLF-18-3200	40.0-161.0	362	2.0 – 5.0 bar
TLF-19-3400	45.0-182.0	408	2.0 – 5.0 bar
TLF-20-3600	51.0-204.0	458	2.0 – 5.0 bar
TLF-21-3800	57.0-227.0	510	2.0 – 5.0 bar
TLF-22-4000	63.0-251.0	564	2.0 – 5.0 bar

## NOTE:-

- Other operating pressures available
- Both automatic and manual versions are available
- Models up to TLF-12-2000 available with multiport valves and larger models comes with individual butterfly valves
- Application specific micro controller and PLC based automation can be offered as per customer choice

# 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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