APEX AQUA TECHNOLOGIES
Water & Wastewater Treatment Solutions

MANUFACTURER • SUPPLIER • EXPORTER

MBBR MEDIA

Moving Bed Biofilm Reactor Carriers

Precision-engineered HDPE & PP biofilm carrier media designed to maximise protected surface area, accelerate biological treatment and deliver dependable, low-maintenance performance across municipal and industrial effluent treatment plants.

HDPE / PP
Food-grade virgin polymer

3 MEDIA TYPES
25x12 • 22x16/25x20 • 25x4 HP

PAN-INDIA & EXPORT
Dewas, Madhya Pradesh, India

COMPANY PROFILE

About Apex Aqua Technologies

Apex Aqua Technologies is an India-based manufacturer of moving bed biofilm reactor (MBBR) media, purpose-built for biological wastewater treatment. Operating out of Dewas, Madhya Pradesh, we design and produce plastic biofilm carriers that give treatment plants a dependable, high-surface-area platform for bacterial growth — helping municipal utilities, EPC contractors and industrial plants achieve consistent BOD, COD and ammonia removal without the footprint of conventional activated sludge systems.

Every batch is produced from virgin-grade HDPE and PP resin on precision tooling, giving each carrier the dimensional consistency, mechanical strength and chemical resistance that biofilm growth depends on. From single-tank STP retrofits to large multi-train CETP upgrades, we supply media matched to the hydraulic and loading conditions of the project.

Every carrier is visually and dimensionally inspected before dispatch.

Our Mission

To make high-performance biological treatment accessible through consistently manufactured, reliably engineered MBBR media.

Our Approach

Tight process control on every extrusion run, so the media you order today performs exactly like the media you re-order next year.

Why Manufacturers & EPCs Choose Us

- Virgin-grade HDPE / PP resin
- Consistent void ratio & wall thickness
- Custom sizes available on request
- Competitive ex-factory pricing
- Responsive technical support

Virgin Polymer

HDPE & PP resin grades selected for long-term chemical and UV resistance.

Precision Tooling

In-house moulds hold tight tolerance on wall thickness and void geometry.

Custom Sizing

Carrier profiles can be adapted to project-specific loading and retrofit needs.

Pan-India & Export

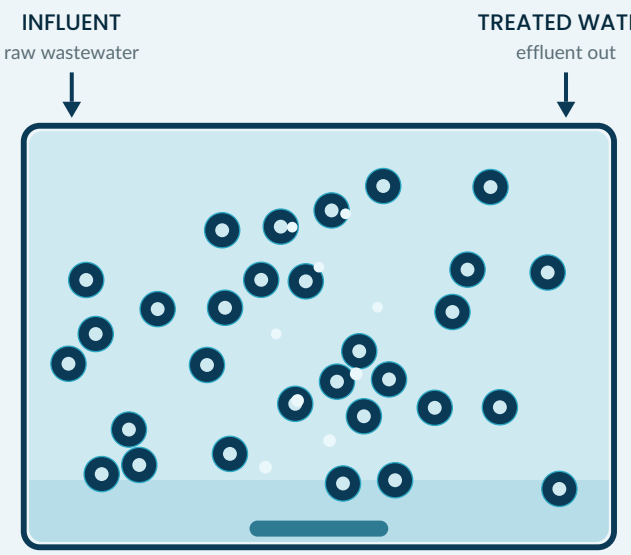
Dispatch from Dewas, Madhya Pradesh to project sites across India and overseas.

Manufactured to order • Quality checked before every dispatch • Backed by responsive technical support

THE TECHNOLOGY

How MBBR Media Works

The Moving Bed Biofilm Reactor (MBBR) process combines the best of suspended-growth and fixed-film treatment. Thousands of small plastic carriers are kept in continuous, gentle motion inside the aeration tank by diffused air or mechanical mixing. Bacteria colonise the protected internal surfaces of each carrier, forming a biofilm that treats the wastewater as it passes through.



Inside the Tank

- MBBR carrier held in free suspension by tank hydraulics
- Diffused aeration supplies oxygen and keeps carriers in constant, gentle motion
- Bacterial biofilm grows on the protected internal surface of every carrier

Media Fill Ratio

Typically 25-70% of tank volume, sized to the design organic or ammonia load.

Retention

Slotted sieve or wedge-wire screens keep carriers inside the tank while water flows freely.

Aeration

Coarse or fine-bubble diffused air is generally used to keep carriers fully mobile.

Retrofit Scope

Media can be dosed directly into existing SBR, ASP or aeration tanks.

01 Carriers Circulate

Free-floating media is continuously mixed throughout the reactor volume by aeration or mixers.

02 Biofilm Establishes

Bacteria colonise the protected surface area inside each carrier, sheltered from shear forces.

03 Pollutants Break Down

As wastewater flows past, the attached biomass metabolises BOD, COD and ammonia continuously.

PRODUCT RANGE

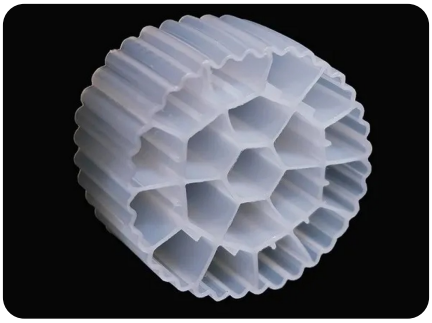
MBBR Media Specifications

Three carrier profiles cover the full range of loading conditions, from high-rate BOD reduction to compact nitrification retrofits. All dimensions and design values below are as manufactured and quality-checked at our facility.

Design Data	MBBR 25×12	MBBR 22×16 / 25×20	MBBR 25×4 High Performance
Material of Construction	HDPE	PP	HDPE
Surface Area	550 m^2/m^3	400 / 450 m^2/m^3	1200 m^2/m^3
Size (D × H)	25 × 12 mm	22×16 / 25×20 mm	25 × 4 mm
PSA : TSA Ratio	78%	78% / 85%	92%
Specific Weight	0.37 kg/m^2	0.37 / 0.30 kg/m^2	0.24 kg/m^2
Specific Gravity	0.92 – 0.95	0.90 – 0.95	0.92 – 0.95
Void Fill (empty space)	> 98%	> 98% / 80%	> 95%
Max. Operating Temp.	< 80°C	< 80°C	< 80°C
Recommended Media Fill	25 – 75%	25 – 55%	30 – 70%

MOC = Material of Construction | PSA:TSA = Protected Surface Area to Total Surface Area ratio

MBBR 25×4 High Performance — HDPE



MBBR 25×12 — HDPE

MBBR 22×16 — PP

Choosing the Right Profile

MBBR 25×12 (HDPE)

A balanced, general-purpose carrier for BOD/COD reduction in municipal STPs and moderate-strength industrial effluent.

MBBR 22×16 / 25×20 (PP)

Higher void fill suits plants prioritising smooth hydraulics and lower headloss across the media bed.

MBBR 25×4 High Performance (HDPE)

Very high surface area per m^3 — suited to compact retrofits and nitrification-focused upgrades where tank volume is limited.

Not sure which profile fits your tank? Share your flow and load data and we'll recommend a media fill.

PERFORMANCE

Why MBBR Media Outperforms

Because biomass lives inside a protected, high-surface-area carrier rather than in free-floating flocs, MBBR systems sustain a denser, hardier population of treatment bacteria — with a simpler process to operate.

1 High Effective Surface Area

More protected surface per cubic metre of media means a larger, denser bacterial population and faster BOD, COD and ammonia removal.

2 Compact Footprint

Higher biomass density per unit volume lets plants treat more load in the same tank — or shrink the tank for the same load.

3 Self-Cleaning Design

Constant, gentle carrier movement creates natural shear that sloughs off excess biofilm, preventing clogging without manual intervention.

4 Retrofit Friendly

Media can be added directly into existing aeration or SBR tanks to boost capacity, with minimal civil work or downtime.

5 Resilient to Shock Loads

The attached biofilm recovers faster than suspended sludge after flow surges, toxic shocks or seasonal load swings.

6 Low Operating Cost

No sludge recycle pumps to run, no media replacement cycle, and less sludge to handle — lowering day-to-day operating cost.

7 Durable HDPE / PP Build

UV-stabilised, chemically resistant polymer construction is engineered for a long service life in continuous immersion.

8 Simple Retention

Standard slotted sieve or mesh retention screens keep media inside the tank while allowing free water flow.

THE RESULT

A smaller aeration footprint, a treatment process that recovers quickly from shock loads, and an operating routine with fewer moving parts to manage day to day — all from a media upgrade that fits inside the tank you already have.

WHERE IT'S USED

Applications & Industries Served

MBBR media from Apex Aqua Technologies is deployed across municipal and industrial effluent treatment plants wherever reliable, space-efficient biological treatment is required.

M

Municipal STPs

Domestic sewage treatment for townships, RWAs and municipalities

E

CETP / ETP

Common and industrial effluent treatment plants across sectors

T

Textile & Dyeing

Colour and organic-load reduction in dye-house effluent

P

Pharmaceutical

High-COD process effluent from bulk drug & formulation units

D

Dairy & Food Processing

High BOD/COD loads from dairy, beverage and food plants

L

Tannery & Leather

Robust treatment for complex, high-strength tannery effluent

C

Chemical & Petrochemical

Resilient biological polishing for process wastewater

R

Pulp & Paper

Organic load reduction in pulp, paper and packaging effluent

B

Breweries & Distilleries

High-strength organic effluent from fermentation processes

H

Hotels & Institutions

Compact packaged STPs for hospitality and campuses

G

Real Estate & Townships

Space-efficient STPs for residential & commercial developments

A

Aquaculture (RAS)

Biofiltration for recirculating aquaculture systems

DON'T SEE YOUR PROCESS HERE?

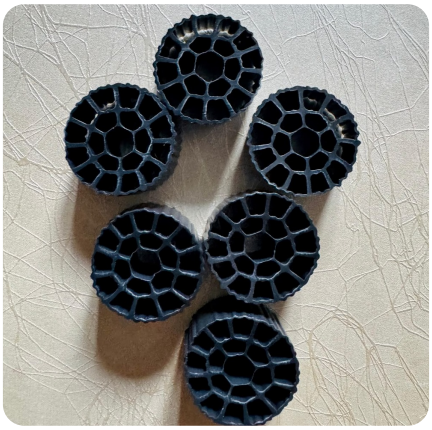
If your plant generates biodegradable organic effluent, MBBR media can very likely improve it. Share your flow, load and space constraints and we'll help you evaluate the fit.

IN PRODUCTION

Product Gallery

A closer look at Apex Aqua Technologies MBBR media — manufactured in both natural HDPE and black UV-stabilised finishes to suit exposed or covered installations.

Natural HDPE Carrier
Fine-cell wheel design



Black UV-Stable Media
High packing efficiency

High-Performance Profile
Maximised void ratio

Natural HDPE — Batch Sample
Consistent wall thickness

Mixed Batch, Black Finish
Ready for dispatch

Quality Check
Every batch inspected

PACKAGING & DISPATCH

Media is packed to arrive site-ready and can be supplied in bulk or project-specific quantities. Tell us your site logistics and volume requirement and we'll advise the best packaging and dispatch plan.

APEX AQUA TECHNOLOGIES

Let's Talk About Your Next Treatment Plant

Whether you're specifying media for a new STP, retrofitting an existing aeration tank, or sourcing MBBR carriers for a large-scale project, our team can help you select the right profile and quantity for your load conditions.

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