

INDION® Fluidised Media Reactor (FMR)

INDION Fluidised Media Reactor (FMR) is designed as a single tank unit with specially developed synthetic media to facilitate attached growth process, oxygen transfer through diffused membrane aeration, lamella settler and chlorine contact tank for disinfection.



Process

In INDION FMR, raw sewage enters from the top of the tank. In the aeration zone, air is introduced at the bottom of the tank through fine bubble diffusers. The media gets suspended due to the turbulence created by the air. Bacteria required for oxidation of the organic matter get attached to the media and some are suspended in the tank. After oxidation, the bacteria grow in number and need to be separated from the aeration tank liquor.

The lamella section inside the settling zone helps in clarification and separation of biomass (sludge) and clear water overflows into the chlorine contact tank. Lamella plates help in increasing the settling area and removing particles effectively in a smaller plant area. In the chlorine contact tank, sodium hypochlorite (NaOCl) is added to disinfect the clarified sewage. Baffle plates are provided to increase contact time of treated sewage with chlorine.

Anoxic tank is included in the scheme when nitrogen and nutrient removal guarantee is required. The chlorinated, treated sewage then flows out of INDION FMR either for further treatment or for disposal.

Features

- Single tank design
- Uses 1/3 space of conventional sewage treatment plant
- Uses high porosity moving media for bacteria to grow
- Useful for modification/capacity extension of existing sewage treatment plant

Advantages

- Minimum land usage
- Minimum power & chemical requirement
- Low operating cost
- Smaller footprint

Applications

INDION FMR delivers treated water to meet discharge norms and can be used as a decentralised compact sewage treatment plant for housing complexes, hotels, commercial complexes, industries and rural communities. The treated water can be used for gardening, toilet flushing and other low end applications.

Treated Water Quality (Domestic Effluent)

Parameters	Inlet	After INDION FMR	After Tertiary Treatment (Optional)
Temperature	27° C	27° C	27° C
BOD	300 ppm	30 ppm	5 ppm
COD	500 ppm	100 ppm	20 ppm
Total Suspended Solids	<150 ppm	<30 ppm	<5 ppm
Ammoniacal Nitrogen	20 ppm	5 ppm*	-
Total Nitrogen	45 ppm	<10 ppm*	-
Oil & Grease	<20 ppm	<10 ppm	<10 ppm

*Guarantee achieved with anoxic inclusion

The INDION FMR is also suitable for industrial effluents. Piloting may be required to establish sizing and to obtain the treated water characteristics.

Technical Specifications

Model	Capacity (KLD)	Dimensions (in mm)	Material of Construction (MOC)
FMR 50	50	4000(L) x 2130(W) x 2200(H)	MSACP*
FMR 100	100	6800(L) x 2130(W) x 2200(H)	MSACP
FMR 150	150	9410(L) x 2130(W) x 2200(H)	MSACP
FMR 200	200	11800(L) x 2130(W) x 2200(H)	MSACP
FMR 250	250	14360(L) x 2130(W) x 2200(H)	MSACP
FMR 100	100	6000(L) x 2500(W) x 3500(H)	Civil
FMR 150	150	7200(L) x 2500(W) x 3500(H)	Civil
FMR 200	200	7550(L) x 3000(W) x 3500(H)	Civil
FMR 300	300	8500(L) x 4000(W) x 3500(H)	Civil
FMR 400	400	9600(L) x 5000(W) x 3500(H)	Civil
FMR 500	500	9500(L) x 6000(W) x 3500(H)	Civil
FMR 750	750	11200(L) x 6600(W) x 3500(H)	Civil
FMR 1000	1000	10200(L) x 10000(W) x 3500(H)	Civil
FMR 1500	1500	15500(L) x 10500(W) x 3500(H)	Civil
FMR 2000	2000	19000(L) x 10500(W) x 3500(H)	Civil
FMR 3000	3000	28500(L) x 10500(W) x 3500(H)	Civil
FMR 4000	4000	33500(L) x 10500(W) x 3500(H)	Civil
FMR 5000	5000	48800(L) x 10500(W) x 3500(H)	Civil

*MSACP – Mild Steel Anticorrosive Painting

Side Water Depth (SWD): 1.7 m for FMR 50 to FMR 200, 2.6 m for FMR 250, 2.9 m for FMR (Civil) 100 to 1000 and 4.0 m for FMR (Civil) 1500 to 5000.

Our state-of-the-art manufacturing facilities are ISO 9001, ISO 14001 & ISO 45001 certified.

To the best of our knowledge, the information contained in this publication is accurate. Ion Exchange (India) Ltd. maintains a policy of continuous development and reserves the right to amend the information given herein without notice. Please contact our regional/branch offices for current product specifications.

INDION® is the registered trademark of Ion Exchange (India) Ltd.



ION EXCHANGE (INDIA) LTD.

Corporate Office

Ion House, Dr. E. Moses Road, Mahalaxmi,
Mumbai - 400011 | Tel: +91 22 6231 2000
E-mail: ieil@ionexchange.co.in

Regional and Branch Offices

Bengaluru | Bhubaneswar | Chandigarh | Chennai
Delhi | Hyderabad | Kolkata | Lucknow | Vadodara
Vashi | Visakhapatnam

International Division

R-14, T.T.C MIDC, Thane - Belapur Road, Rabale,
Navi Mumbai - 400 701 | Tel: +91 22 6857 2400
E-mail: export.sales@ionexchange.co.in

Overseas Offices

Bahrain | Bangladesh | Canada | Indonesia | Kenya
Malaysia | Oman | Portugal | Saudi Arabia | Singapore
South Africa | Sri Lanka | Tanzania | Thailand | UAE | USA

Manufacturing Units

India - Ankleshwar | Hosur | Patancheru | Rabale | Verna | Wada

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