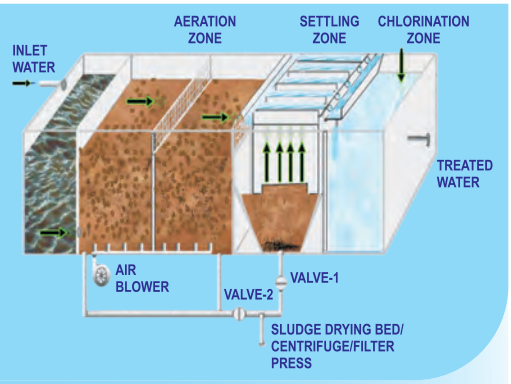
ION EXCHANGE
Refreshing the Planet

INDION® Fluidised Media Reactor (FMR)



INDION Fluidised Media Reactor (FMR) is designed as a single tank unit, incorporating a bar screen chamber, specially developed synthetic media to facilitate attached growth process, oxygen transfer through diffused membrane aeration, a lamella settler and a 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 for 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 the 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.

Valves are used for sludge removal as well as MLSS (mother liquor suspended solids) adjustment.
The chlorinated, treated sewage then flows out of INDION FMR either for further treatment or for disposal.

Features

- Single tank design
- 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

Applications

INDION FMR delivers treated water to meet local 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)

	After INDION FMR	After Tertiary Treatment (Optional)
BOD	30 ppm	5 ppm
COD	100 ppm	20 ppm
Total suspended solids	< 30 ppm	< 5 ppm
Oil & grease	<10 ppm	<10 ppm

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 m^3/d	Dimensions (in mm)	Material of Construction
FMR 50	50	4000 (l) x 2130 (w) x 2200 (h)	MSAZP
FMR 100	100	6880 (l) x 2130 (w) x 2200 (h)	MSAZP
FMR 150	150	9280 (l) x 2130 (w) x 2200 (h)	MSAZP
FMR 200	200	11420 (l) x 2130 (w) x 2200 (h)	MSAZP
FMR 250	250	11350 (l) x 2250 (w) x 3000 (h)	MSAZP
FMR 100	100	8000 (l) x 2500 (w) x 3500 (h)	Civil
FMR 150	150	8000 (l) x 2500 (w) x 3500 (h)	Civil
FMR 200	200	8900 (l) x 3000 (w) x 3500 (h)	Civil
FMR 300	300	9100 (l) x 4000 (w) x 3500 (h)	Civil
FMR 400	400	10500 (l) x 5000 (w) x 3500 (h)	Civil
FMR 500	500	12600 (l) x 6000 (w) x 4150 (h)	Civil
FMR 750	750	13200 (l) x 6600 (w) x 3500 (h)	Civil
FMR 1000	1000	10400 (l) x 10000 (w) x 3500 (h)	Civil
FMR 1500	1500	17000 (l) x 10500 (w) x 5000 (h)	Civil
FMR 2000	2000	21000 (l) x 10500 (w) x 5000 (h)	Civil
FMR 3000	3000	30000 (l) x 10500 (w) x 5000 (h)	Civil
FMR 4000	4000	40000 (l) x 10500 (w) x 5000 (h)	Civil
FMR 5000	5000	49000 (l) x 10500 (w) x 5000 (h)	Civil
FMR 6000	6000	59000 (l) x 10500 (w) x 5000 (h)	Civil

*MSAZP - Mild Steel Akzonobel 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 6000.

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