

## 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 <sup>3</sup> /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.

**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.



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