

## The Pact Moving Bed Bioreactor (MBBR)

Higher Efficiency with Smaller Foot-Print  
(30 - 40% Savings in Space) and Less Civil work

Specially Formulated Time-tested Media For Attached  
Growth As Well As Sludge Settling

Low Sludge Generation

Less Site Activity means Quick Installation  
and Commissioning



### APPLICATIONS

Where is PACT MBBR used

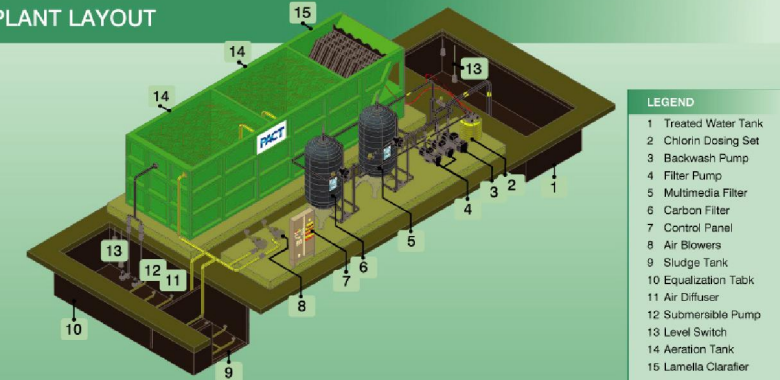
- ◆ Residential areas
- ◆ Sewage treatment for industries
- ◆ Hotels & resorts
- ◆ Workers / labourers accommodations at construction sites
- ◆ Food & beverage industries
- ◆ Any organic waste water treatment
- ◆ Rehabilitation sites
- ◆ Remote sites
- ◆ Offshore Installations\*

\* For oil & gas applications explosion proof models are available.

### PACT MBBR ADVANTAGES

- ◆ Engineered to best available technology and components of leading manufacturers
- ◆ Designed for durability, easy maintenance and minimal upkeep cost
- ◆ PACT MBBR plant requires 30% to 40% less space as compared to other conventional treatment systems.
- ◆ Can be placed on basement or above the septic tank.
- ◆ Requires minimum civil work.
- ◆ Less sludge production thus less sludge treatment and disposal cost
- ◆ Ease in transportation and Relocation

### PLANT LAYOUT



### WHAT IS IN THE PACT MBBR SYSTEM?

Normal biological wastewater treatment is done traditionally by suspended growth mode (e.g. activated sludge and extended aeration processes) or attached growth mode (Trickling filter Rotating Biological Conductors). The technology adopted in MBBR is combination of both which works on higher MLSS concentration. In MBBR systems fast bio-reaction takes place between bacteria and organic matter. There are generally two compartments thereby permitting more efficient and compact treatment. The media has a unique property of having high area for a given volume. The media is typically designed and manufactured for this application. The second compartment is the sludge separation compartment. Unique feature of system is to use media, which is constantly in motion. These media components are floating and are kept in

circular motion by air action directed at them. In MBBR systems, bio-film gets very high oxygen transfer, thus saving energy. It is safe to assume that as compared to a conventional extended aeration system, PACT Moving Bed Bio-reactor occupies 65% less space and offers considerable saving in power consumption. Due to the very fast reaction, the retention time is exceptionally low, which make "The PACT MBBR systems" very compact. The clients achieve considerable saving as compared to the conventional Aerobic systems. In the conventional systems, pockets of anaerobic patches are formed on media. Such patches are indicative of restricted supply of oxygen to the reaction area causing degradation of the biological process. In "The PACT MBBR systems", the rotating media is constantly in contact with oxygen. There are no dark patches and oxygen transfer is highly efficient. A lamella tank is provided in which the sediments, being heavier, settle down leaving supernatant water to flow out from the top. This settler tank provides larger settlement surface area. Thus clarification is achieved in the shortest possible time.

### PACKAGE SEWAGE TREATMENT PLANTS

PACT MODEL NUMBER	CAPACITY * (m3/Day)	CAPACITY (GPM)	POPULATION (Person)	PLANT FOOT PRINT** (Approximate)
MB30BR	30	0.8- 5.2	25-200	8 m L x 5 m W
MB50BR	50	9.15	250	8 m L x 5 m W
MB75BR	75	13.73	375	8 m L x 6 m W
MB100BR	100	18.31	500	10 m L x 6 m W
MB150BR	150	27.51	750	11 m L x 7 m W
MB200BR	200	36.67	1000	12 m L x 7 m W
MB250BR	250	45.83	1250	14 m L x 7 m W
MB300BR	300	55.03	1500	14 m L x 9 m W
MB400BR	400	73.38	2000	16 m L x 9 m W
MB800BR	800	146.76	4000	18 m L x 12 m W
MB1000BR	1200	220.14	6000	30 m L x 12 m W
MB1500BR	1600	293.52	8000	34 m L x 18 m W
MB2000BR	2000	366.91	10000	36 m L x 24 m W

Above information is based on following :

- ◆ Inlet BOD/SS 300/300, Outlet BOD/SS 20/20
- ◆ Discharge of 200 ltrs/person/day
- ◆ Dimensions are subject to change and modification
- ◆ For higher BOD/SS additional treatment will be added to the standard design



PACT is an ISO 9001-2000 accredited specialist manufacturer and supplier of industrial and municipal water and wastewater treatment equipment and plants.

PACT products are the result of years of interaction between PACT engineers, end-users and contractors.

The standard design shown in the attached bulletin may be used as a reference, however, custom design is the norm rather than the exception. PACT builds the equipment to suit the individual application and the governing standards.

PACT engineers have a broad range of expertise in physical, chemical, biological and membrane processes for water and wastewater treatment. In every discipline PACT provides numerous process choices to solve complex treatment problems effectively and economically.

PACT sales and service network has global coverage through company owned regional offices as well as through appointed representatives. This network of service centers and the head office form an integrated organization to serve all users.

PACT products cover the following scope of works:

- ◆ PACT Industrial Water & WasteWater Treatment Plants
- ◆ PACT Municipal Water & WasteWater Treatment Plants
- ◆ PACT Custom Built RO Desalination Plants
- ◆ PACT Package Filtration Plants (MF-UF)
- ◆ PACT Package Softening Plants (ION Exchange-NF)
- ◆ PACT Package Desalination Plants (RO)
- ◆ PACT Package Demineralisation Plants (RO-ION Exchange)
- ◆ PACT Package Sewage Treatment Plants (MBBR-MBR-Extended Aeration)
- ◆ PACT Grey Water Treatment Plants

**Regional Offices**

LOS ANGELES / USA  
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**DUBAI / UNITED ARAB EMIRATES**

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# MBBR System



**PACT INDUSTRIAL AND MUNICIPAL WATER AND WASTEWATER TREATMENT EQUIPMENT & PLANTS**



## **PACT PACKAGE SEWAGE TREATMENT PLANT**



ISO9001-2000 Certified for Design, Manufacturing and Servicing of Standard and Custom-Designed and built Equipment and Plants