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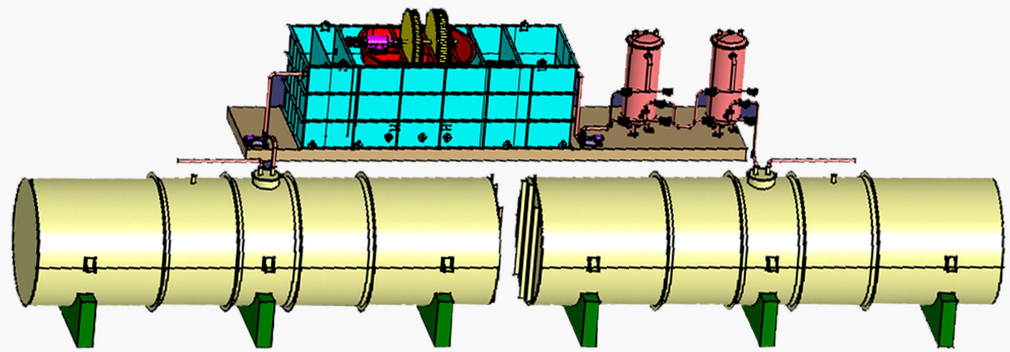
SEWAGE TREATMENT PLANT



ROTATING BIOLOGICAL CONTACTOR

RBC–STP

PRE FABRICATED PACKAGED SYSTEM

ROTATING BIOLOGICAL CONTACTOR

A rotating biological contactor or RBC is a biological treatment process used in the treatment of wastewater following treatment. The primary treatment process removes the grit and other solids through a screening process followed by a period of settlement. The RBC process involves allowing the wastewater to come in contact with a biological medium in order to remove pollutants in the wastewater before discharge of the treated wastewater to the environment, usually a body of water (river, lake or ocean). A rotating biological contactor is a type of secondary treatment process. It consists of a series of closely spaced, parallel discs mounted on a rotating shaft, which is supported just above the surface of the wastewater. Microorganisms grow on the surface of the discs where biological degradation of the wastewater pollutants takes place.

The rotating packs of disks (known as the media) are contained in a tank or trough and rotate at between 2 and 5 revolutions per minute. Commonly used plastics for the media are polythene, PVC and expanded polystyrene. The shaft is aligned with the flow of wastewater so that the discs rotate at right angles to the flow with several packs usually combined to make up a treatment train. About 40% of the disc area is immersed in the wastewater.

Biological growth is attached to the surface of the disc and forms a slime layer. The discs contact the wastewater with the atmospheric air for oxidation as it rotates. The rotation helps to slough off excess solids. The disc system can be staged in series to obtain nearly any detention time or degree of removal required. Since the systems are staged, the culture of the later stages can be acclimated to the slowly degraded materials.

The discs consist of plastic sheets ranging from 2 to 4 m in diameter and are up to 10 mm thick. Several modules may be arranged in parallel and/or in series to meet the flow and treatment requirements. The discs are submerged in waste water to about 40% of their diameter. Approximately 95% of the surface area is thus alternately submerged in waste water and then exposed to the atmosphere above the liquid. Carbonaceous substrate is removed in the initial stage of RBC. Carbon conversion may be completed in the first stage of a series of modules, with nitrification being completed after the 5th stage. Most design of RBC systems will include a minimum of 4 or 5 modules in series to obtain nitrification of waste water.

Biofilms, which are biological growths that become attached to the discs, assimilate the organic materials in the wastewater. Aeration is provided by the rotating action, which exposes the media to the air after contacting them with the wastewater, facilitating the degradation of the pollutants being removed. The degree of wastewater treatment is related to the amount of media surface area and the quality and volume of the inflowing wastewater.

Secondary clarifier:

Secondary clarifiers following RBCs are identical in design to conventional humus tanks, as used downstream lamella plates. Sludge is generally removed daily, or pumped automatically to the primary settlement tank for co-settlement. Regular sludge removal reduces the risk of anaerobic conditions from developing within the sludge, with subsequent sludge flotation due to the release of gases.

- Short contact periods are required because of the large active surface.
- RBCs are capable of handling a wide range of flows.
- Sloughed biomass generally has good settling characteristics and can easily be separated from the waste stream.
- Operating costs are low because little skill is required in plant operation.
- Short retention time.
- Low power requirements.
- Elimination of the channeling to which conventional percolators are susceptible.
- Low sludge production and excellent process control.

ADVANTAGES OF RBC STP

- In built complete single packaged system including collection tank and treated water tank.
- Low noise level during operation, the noise level decibels will be less than 20
- No, stincking or bad odor during operation.
- The entire packaged unit can be transported or shifted from one location to another.
- The system can be easily upgraded from one capacity to another capacity by additional of module.
- Minimal civil work is required at site.
- Minimal Eletro mechanical gadgets required for installation.
- Low operation and maintenance cost.
- Material of construction is mild steel lined with FRP, which will Increase the durabilty of system for long lasting.
- The various readymade capacity modules are available starting from 5KLD to 1000KLD as standard system.
- The customized system can be fabricated according to the site requirment as we have the manufactoring unit available with us.
- The systems do not require skilled manpower to operate, also it can be operated with minimal manpower compared to the conventional system.
- The entire unit consumes only 1/2TH of manpower required, as compared to the conventional system.
- The moving and mechanical spares are easily available in local markets.
- It has inbuilt sludge storage tank and the sludge can be stored upto 6 months.
- Daily desludge process is not required for this system as compared with convention al system.
- It requires on1/2TH of the space required as compared to conventional system.
- Rotatory Biological Contractor process is proven technology available world wide since 18th century.
- The RBC system has both primary and secondary clarifier mechanism as lamella clarifier which increases the settling mechanism better.
- The entire unit is covered and it will not have any ugly look, this system can be placed above ground level or below ground level or at the basement.
- The RBC STP will have minimal consumables to operate this system do not require any other consumable except Sodium Hypo Chlorite.
- The electrical power consumption will less and it will consume only 1/4THof the power as compared with conventional or civil based STP.

ROTATORY BIOLOGICAL CONTACTOR SEWAGE TREATMENT PLANT MODELS

SI.NO	MODEL	CAPACITY IN KLD	RBC RECTANGULAR TANK DEIMENSION IN MM			NO OF	ROTOR QUANTITY				TOTAL ROTOR	BOAT	NO OF	NO OF
			LENGTH	WIDTH	HEIGHT	RBC TANK	3 LEAF	5 LEAF	10LEAF	15LEAF	QUANTITY	SIZE IN MM	BOAT	GEARBOX
1	OWTRBCSTP30	0-30	5350	2100	3300	1	2	0	0	0	2	2950	1	1
2	OWTRBCSTP50	35-50	5950	2100	3300	1	0	2	0	0	2	3350	1	1
3	OWTRBCSTP75	55-75	6850	2100	3300	1	0	1	1	0	2	3850	1	1
4	OWTRBCSTP100	80-100	8850	2100	3300	1	0	0	3	0	3	5850	1	1
5	OWTRBCSTP150	120-150	10300	2100	3300	1	0	0	1	2	3	6850	1	1
6	OWTRBCSTP250	175-250	11900	2100	3300	1	0	0	2	2	4	8250	1	1
7	OWTRBCSTP350	275-350	12600	2100	3300	1	0	0	1	3	4	8750	1	1
8	OWTRBCSTP500	375-500	11900	2100	3300	2	0	0	6	0	6	8250	2	2
9	OWTRBCSTP800	600-800	12600	2100	3300	2	0	0	2	6	8	8750	2	2
10	OWTRBCSTP1000	850-1000	12600	2100	3300	3	0	0	3	9	12	8750	3	3

THE PACKAGE INCLUDES THE FOLOWING BELOW DETAILS

RAW SEWAGE TRANFERS PUMPS

FILTER FEED PUMPS

GEARBOX

SAND FILTER

CARBON FILTER

DOSING SYSTEM

CONTROL PANEL

CABLE

INTER CONNECTING PIPE WORKS

RBC TANK WITH ACCESSORIES

MILD STEEL FIBRE REINFORCED PLASTIC TANKS MODELS

SI.NO	MODEL	CAPACITY IN M3	DIAMETER INMM	LENGTH INMM	FRP LINING IN MM
1	OWTMSFRP5	5	1500	3000	3
2	OWTMSFRP10	10	2000	3000	3
3	OWTMSFRP15	15	2000	5000	3
4	OWTMSFRP20	20	2250	5000	3
5	OWTMSFRP25	25	2250	6000	3
6	OWTMSFRP30	30	2500	6000	3
7	OWTMSFRP40	40	2500	8000	3
8	OWTMSFRP50	50	2750	8500	3
9	OWTMSFRP60	60	3000	8500	3
10	OWTMSFRP70	70	3000	10000	3
11	OWTMSFRP90	90	3250	11000	3
12	OWTMSFRP100	100	3250	12000	3

THE SUITABLE TANKS CAPACITY CAN BE SELECTED FOR BOTH COLLECTION AND TREATED WATER TANK

CLIENTELE

OUR RBC STP CLIENT LIST				
CLIENT NAME	CAPACITY	YEAR	PLACE	PROJECT TYPE
Landmark Constructions	15KLD	2005	Chennai	Residential
Sree Foundations	45KLD	2005	Chennai	Residential
Patteshwara Constructions	50KLD	2007	Coimbatore	Residential
SP Apparels	100KLD	2007	Coimbatore	Industory
Ashirwad	50KLD	2007	Coimbatore	Hospital
Akshaya Homes	15KLD	2008	Chennai	Residential
L & T Demag	40KLD	2008	Chennai	Factory
Greaves Cotton	50KLD	2008	Chennai	Industory
Goa International Airport	180KLD	2008	Goa	Government
Global Construcitons	25KLD	2009	Bangalore	Residential
Tamara	50KLD	2009	Coorg	Hotel
Cronos Groups	10KLD	2010	Bangalore	Residential
Indiradanush	50KLD	2010	Bangalore	Hotel
BMTC - IVRCL	180KLD	2010	Bangalore	Government
Samitha Acadamy	50KLD	2010	Bangalore	Educational
BMTC - NCC	120KLD	2011	Bangalore	Government
J.R Group of company	120KLD	2011	Bangalore	IT
Royal splendor	25KLD	2011	Chennai	Residential
Marutham group	50KLD	2011	Chennai	Residential
Ncc - Sri Aruna Constructions	15KLD	2011	Gulbarga	IT
Devinarayan Housing	75KLD	2012	Bangalore	Residential
Jak Associates	50KLD	2012	Bangalore	IT
Golden Properities	80KLD	2012	Chennai	Residential
Zed Costructions	35KLD	2012	Bangalore	Hotel
Alliance Group	700KLD	2012	Chennai	Residential
Prospect Group	30KLD	2012	Bangalore	Residential
MBR	75KLD	2012	Bangalore	Residential
CBRE(Deejay Costructions)	10KLD	2012	Chennai	Residential
Sai Lakshmi shelter	45KLD	2013	Bangalore	Residential
Manju Foundations	125KLD	2013	Chennai	Residential
Prajay Virgin County	100KLD	2013	Hyderabad	Residential