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MBBR Suspension Packing Product Instructions

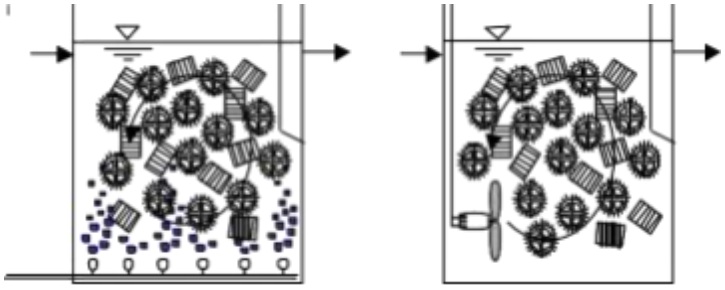
I. Product Profile

By using the basic principle of biofilm process MBBR the biofilm reactor, the AquaSust makes full use of the advantages of activated sludge process and overcomes the shortcomings of traditional activated sludge process and fixed biofilm process. The key to the technology is to study and develop biological fillers with a specific gravity close to water and easy to move freely with water under slight stirring. Biological fillers have large effective surface area and are suitable for microbial adsorption and growth. The packing structure is characterized by an inner surface area that is protected for microbial growth. When aerated, the rising buoyancy of the air bubble pushes the packing and the surrounding water body to flow, and when the air flow passes through the void of the water flow and the packing, it is blocked by the packing and divided into small bubbles. in such a process, the filler is sufficiently stirred and mixed with the water flow, which in turn is sufficiently split into fine bubbles, increasing the contact and oxygen transfer efficiency of the biofilm. Under anaerobic conditions, water flow and packing flow fully under the action of diving agitator to achieve the purpose of biological decomposition of biofilm and treated pollutants. A AquaSust named MBBR biofilm reactor process.

The schematic diagramis shown in figure

1. Therefore, the AquaSust biofilm process breaks through thelimitation of traditional biofilm process (blockage and uneven distribution of water in fixed bed biofilm process, as well as the limitation of fluidized bed process).

It lays a good foundation for the wider application of biofilm process in wastewater biological treatment.



s) aerobic reactor b) anaerobic reactor

Figure 1 Flow bed ™ Schematic diagram of biofilm process

II. Process characteristics

Features of the AquaSust MBBR process include:

1. High volume load, compact and economical: volume load depends on the effective specific surface area of biological fillers. The specific surface area of different fillers varies greatly. The specific surface area of filler developed by AquaSust company can change from

200 square meters / cubic meter to 1200 square meters / cubic meter packing volume to adapt to different pretreatment requirements and applications.

2. High impact resistance, stable performance and reliable operation: the influence of impact load and temperature change on the MBBR process ofAquaSust is far less than that on activated sludge process. When the composition of sewage changes or the

toxicity of sewage increases, biofilm has strong tolerance to this.

3. The mixing and aeration system is easy to operate and easy to maintain: the aeration system adopts perforated aeration pipe system, which is not easy to block. The agitator adopts banana type stirring blade, the outline line is soft, does not damage the packing. The whole mixing and aeration system is easy to maintain and manage.

4. There is no blockage in the biological pool, the volume of the biological pool is

fully utilized, and there is no dead angle: because the packing and water flow can be mixed in the whole volume of the biological pool, the blockage of the biological pool can be eliminated fundamentally. Therefore, the pool capacity is fully utilized.

5. Flexible and convenient: the flexibility of the process is reflected in two aspects. On the one hand, a variety of pool types (deep and shallow square) can be used without affecting the treatment effect of the process. On the other hand, different packing filling rates can be selected flexibly to meet the requirements of high efficiency and long-term expansion without increasing pool capacity. For the transformation and upgrading of the original activated sludge treatment plant, the flow bed TM biofilm process can be easily combined with the original process to form the activated sludge-biofilm integration process or the flow bed-activated sludge combination process.

6. Long service life: high quality and durable biological filler, aeration system and outlet device can ensure the long-term use of the whole system without replacement, low depreciation rate.

III. Basic physical elements of the process

Basic physical elements of the AquaSust MBBR process include: biological filler; aeration system or agitator system; effluent device; pool body.

Figure 2 shows the basic physical elements of the process



Fig .2 basic physical elements of fluidized bed biofilm process: biological filler, aeration system, mixing system, outlet device, pool body

Biological fillers: according to the discharge standards of sewage and effluent of different properties, we have developed a series of different biological fillers with a specific surface area of 200- 1200 square / cubic to meet various treatment requirements. When pretreatment requirements are low or sewage contains a large amount of fiber, biological fillers with smaller specific surface areas, such as primary settling tanks, are used in municipal sewage treatment, or, In the treatment of papermaking wastewater containing a large amount of fiber. When better pretreatment or nitrification has been used, biological fillers with large specific surface area are used. Biological fillers are made of plastic.

Aeration system: because of the irregular movement of biological fillers in biological ponds, the aeration system only needs to adopt porous pipes with small and medium pore diameters, so, There is no clogging problem and high maintenance requirement in microporous aeration. The aeration system requires uniform air distribution, and the air supply is determined by design and can be controlled.

Agitator system: banana blade diving agitator in anaerobic reactor. Under uniform and slow stirring, biological fillers and water bodies produce cyclotron flow state to achieve the purpose of uniform mixing. The installation position and angle of the agitator can be adjusted to achieve the ideal flow state. Biological fillers will not be damaged during stirring.

Outlet device: the outlet device requires that the biological filler be kept in the biological tank, and its pore size is determined by the shape size of the biological filler. The shape of the outlet device is porous plate type or wound welded tube type (vertical or horizontal direction). the effluent area depends on the unit outflow load with different pore sizes. The outlet device has no movable parts and is not easy to wear.

Pool body: whether the shape of the pool body is regular or not, the depth and the proportion of the three scale directions basically do not affect the effect of biological treatment, and can be selected flexibly according to the specific situation. The arrangement of agitator system also needs to be optimized and adjusted

according to pool type. The material of the pool body is unlimited. When necessary, the pool body can be capped and left with an observation window.

IV. Directions for Use

I.Preparation before packing

1.Before the MBBR suspended filler is put into operation, the screen size should be smaller than the diameter of the selected suspended filler. The outlet needs a large area of screen to avoid blockage.

2. The aeration or a small amount of aeration should be stopped before the packing is installed.

3. Before packing, the project must complete all pre-construction and have all the preparatory work for engineering commissioning.

II.Delivery of fillers

1.Tools: scissors, art knife. Please use scissors or knife to open the woven bag.

2.Please pay attention to personal safety, do not press the railing to avoid accidents.

3.According to the size of the pool and site conditions, select multiple locations of the pool to put in, to the principle ofuniform delivery

4 . After delivery, please pay attention to recycling and proper handling of woven bags.

III.Running debugging

1. According to the pool type, control and adjust the aeration rate to flow evenly in the water.

2. In the early operation process, sludge reflux should be increased to achieve the effect ofrapid inoculation.

V. Storage

AquaSust MBBR storage requirements.

1) AquaSust MBBR needs to avoid sunlight, it should be stored in warehouse , and cover should be set when it is stacked in the open air on site.

2) AquaSust MBBR is stored in dry and clean environment, and it is prohibited to be stored in wet and corrosive environment.

3) AquaSust MBBR should be stored to avoid extrusion and collision, to prevent the MBBR from being damaged and deformed by external force.

VI. AquaSust MBBR installation instructions

1. MBBR installation before the pre-installation of the pool body support and the upper and lower ends of the steel mesh support frame, support frame structure material according to the size of the pool body and water quality to determine.

2. Angle steel support frame up and down the two layers are arranged, vertical and horizontal grid arrangement, a single pool body on the two ends of the arrangement of horizontal and vertical each of the four angle steel support frame, spacing 1-1.2m, angle steel support frame using welded connection with the original steel beam of the pool body (can also be fixed using bolts).

3. After the installation of the support frame, fix the bottom of the steel screen, steel screen and support angle steel wire tie way fixed (can also be used to fix the way the pressure bar).

4. Put in MBBR, pay attention to reduce the time the MBBR is exposed to the sun and reduce direct sunlight when putting in.

5. MBBR is added evenly, to ensure that the fill rate reaches the requirements of the design calculation, each pool is added equally.

6. MBBR casting control casting height, reduce friction and collision between the filler and the pool body.

7. MBBR casting is completed after the installation of the upper steel screen, steel screen and support angle steel wire tying way fixed (can also be used to press the way fixed).

8. Immediately after installation to the pool body water replenishment, to prevent the MBBR exposed to light for a long time.

VII. Points for attention

1.This product needs professional use, and do not let children play to avoid accidents.

2.The amount of film hanging is affected by temperature, aeration and water quality.

3.Packing stacking height should be less than 10 layers to avoid extrusion deformation.

4.This quality guarantee period is two year, the product service life is more than 15 years.

5.This product will be suspended in the water at the beginning of the product, this is a normal phenomenon, aeration or stirring will be normal operation in the water.

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